TECHNOLOGY DEPT.

Gas Journal

Vol. 266. 103rd Year. LONDON, APRIL 4, 1951. No. 4583. Price 1/-

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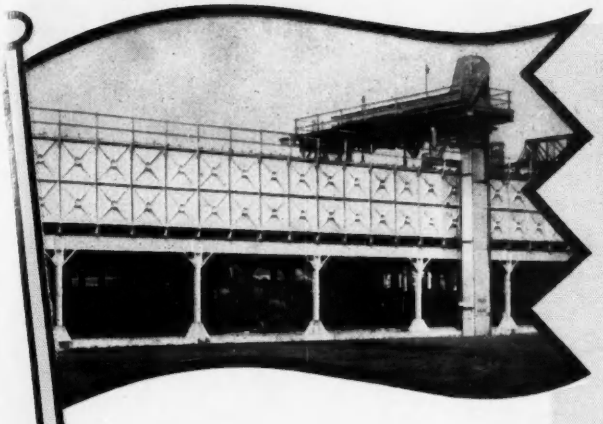

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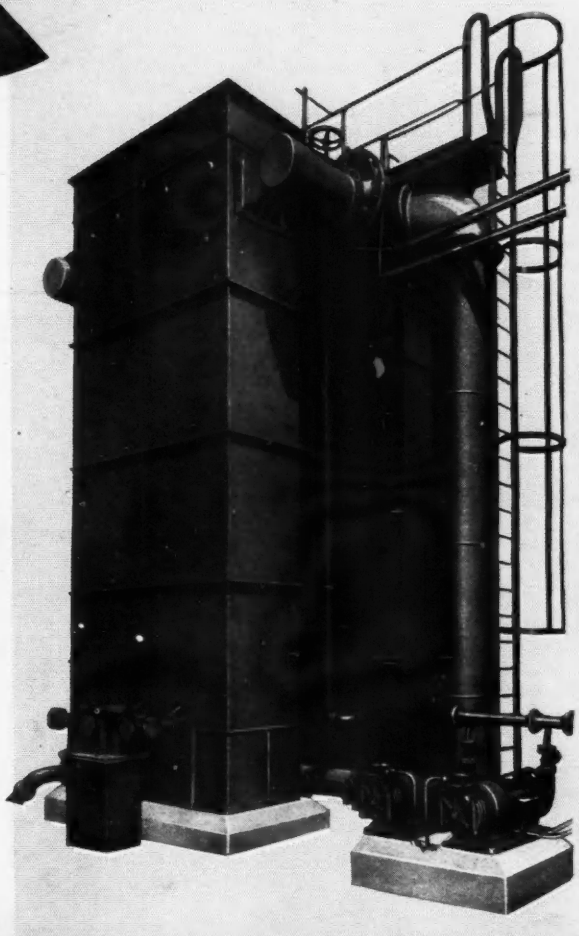

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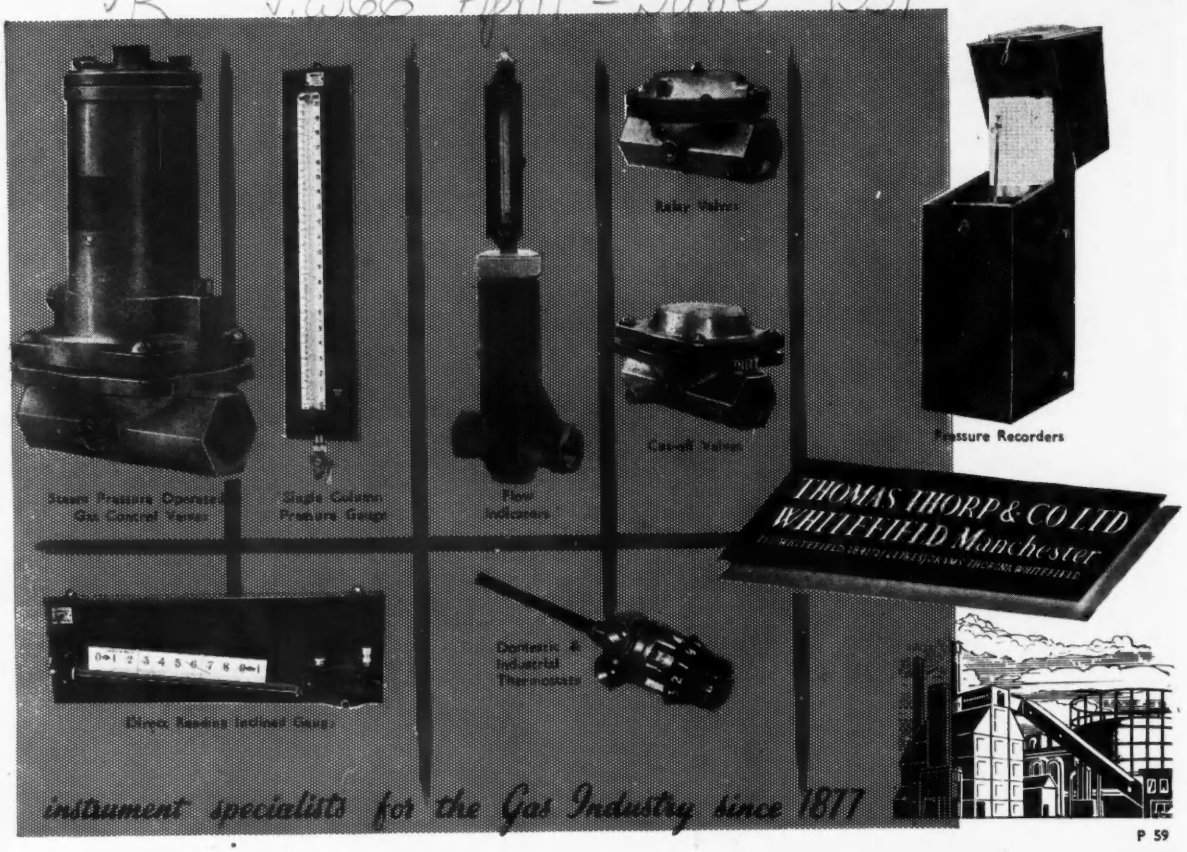

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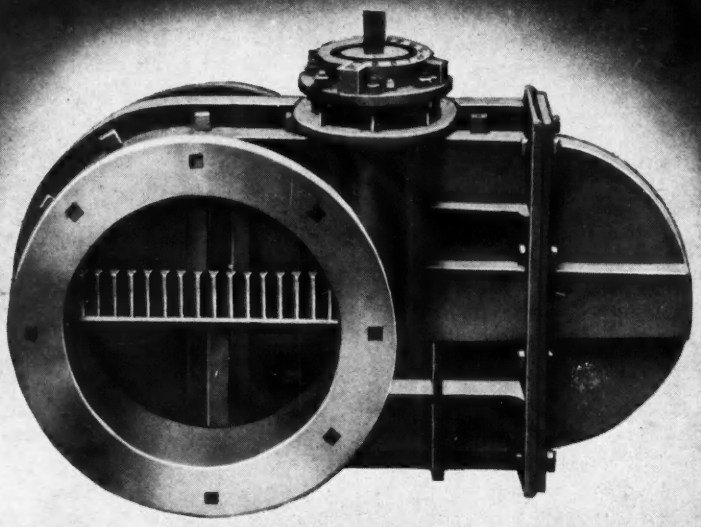

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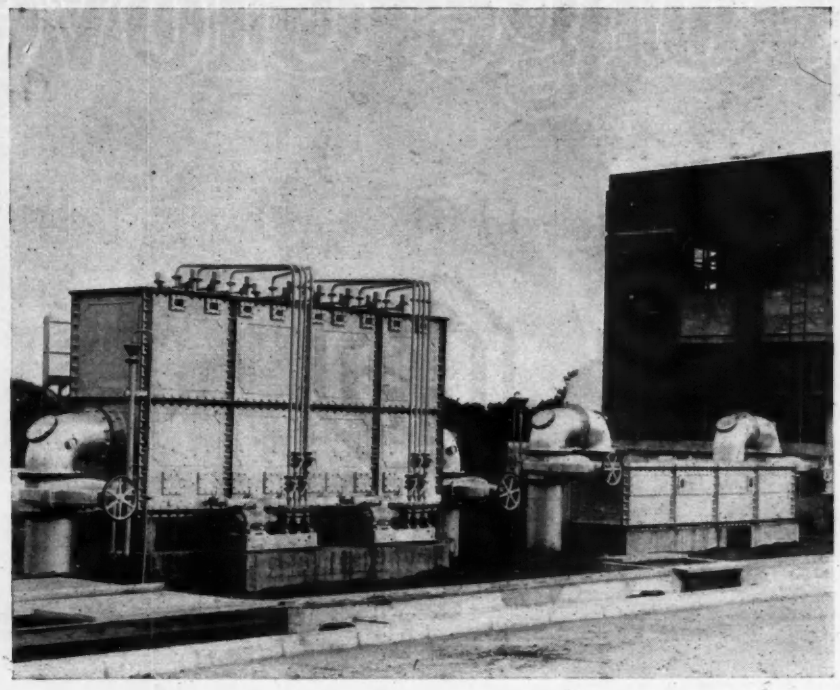

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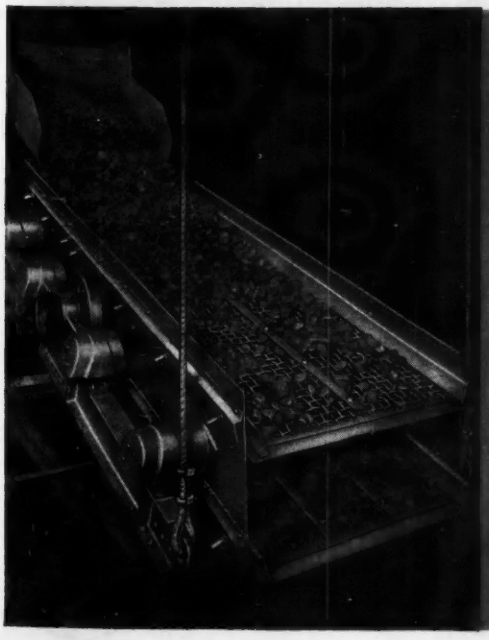

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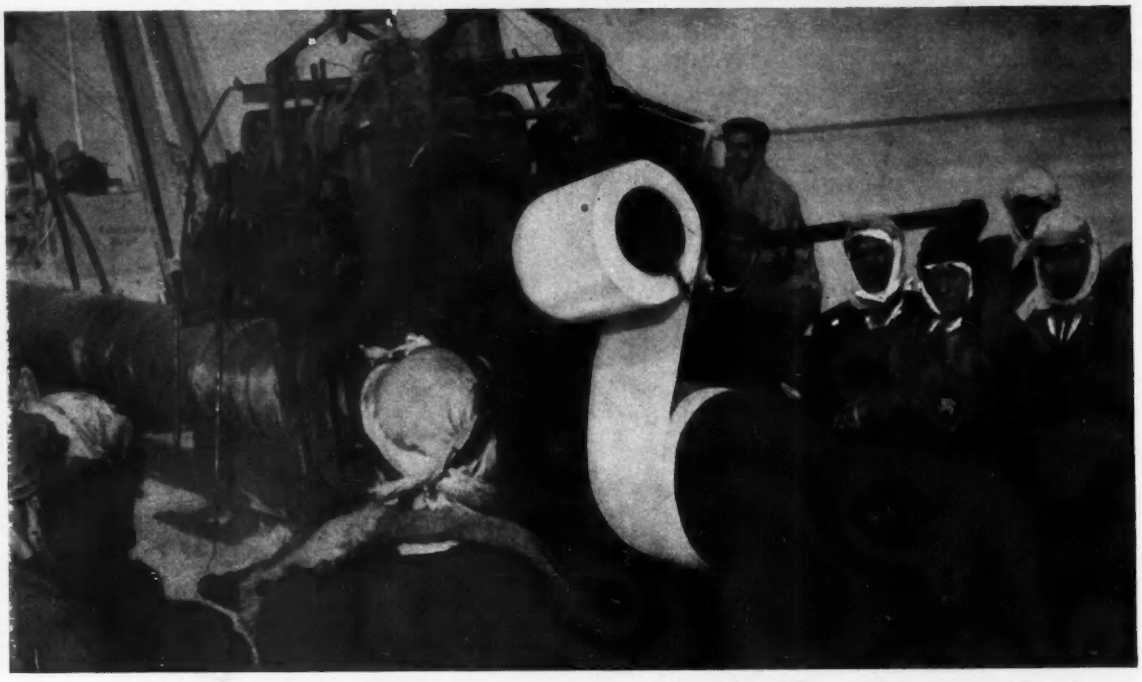

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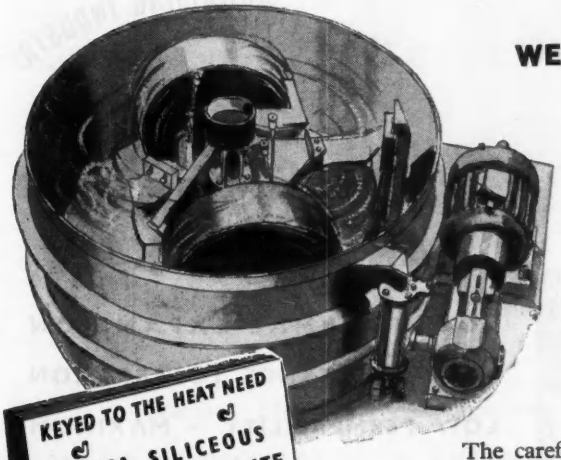

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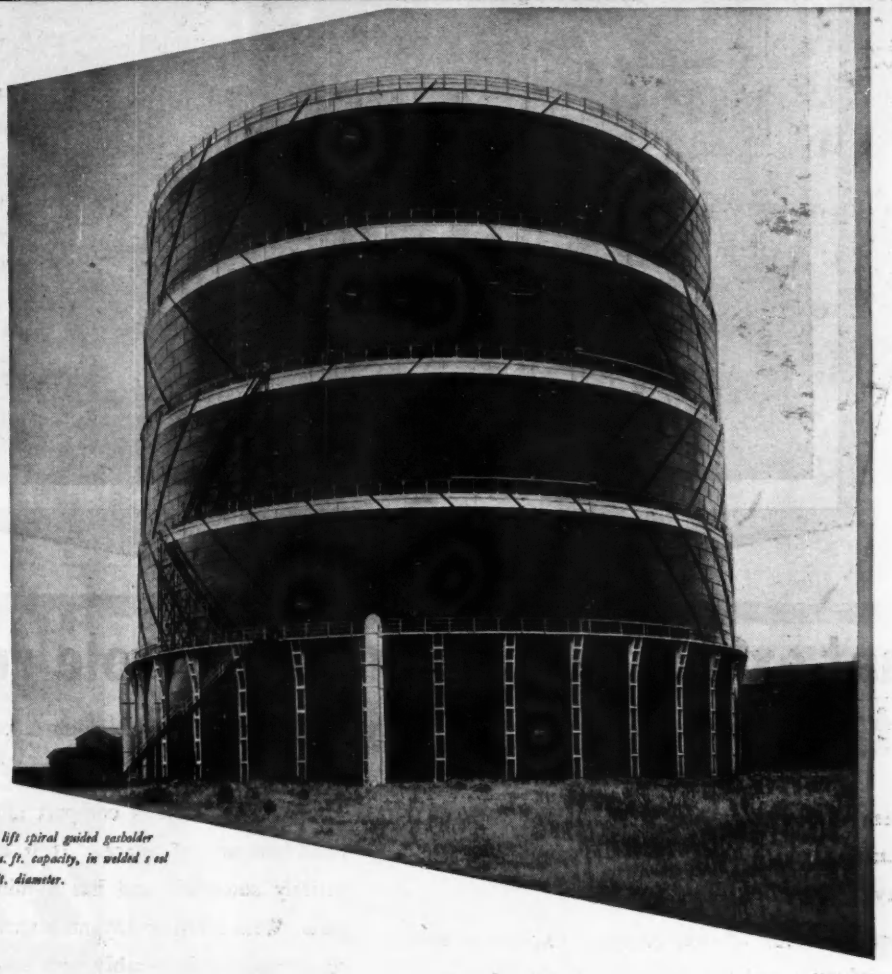

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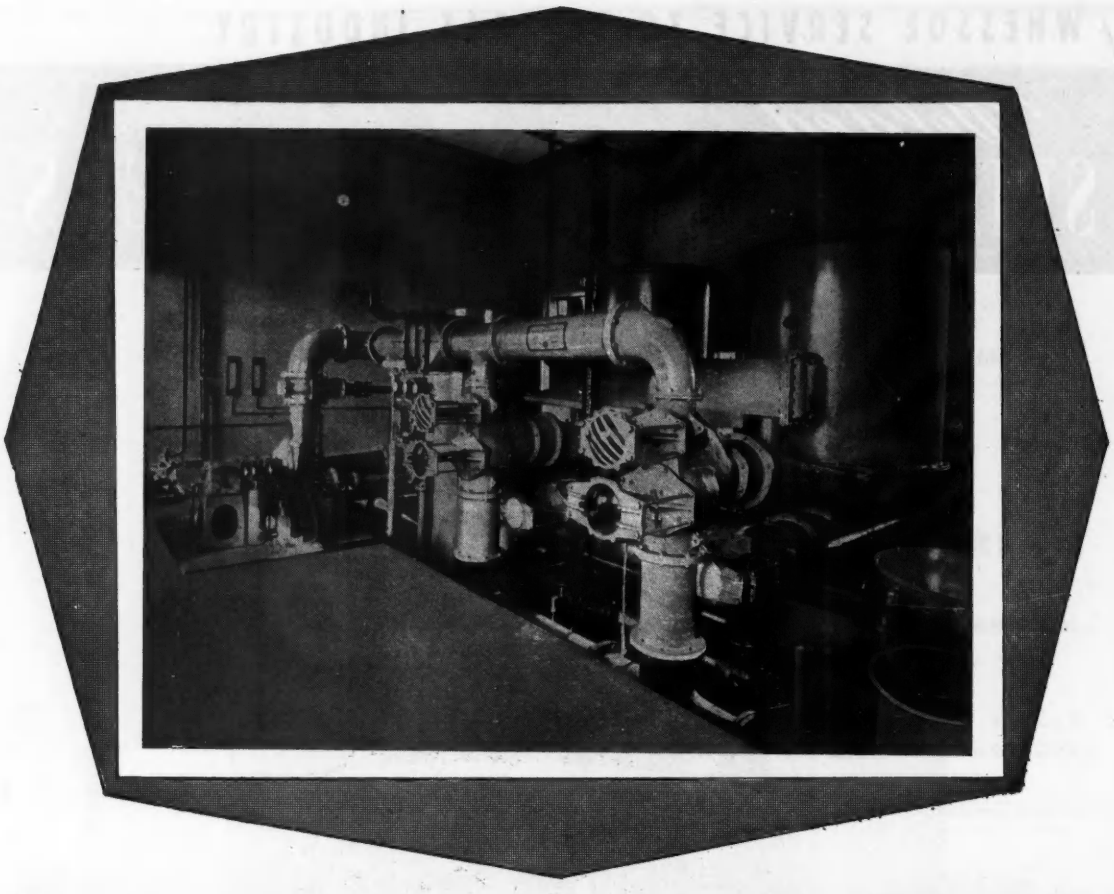

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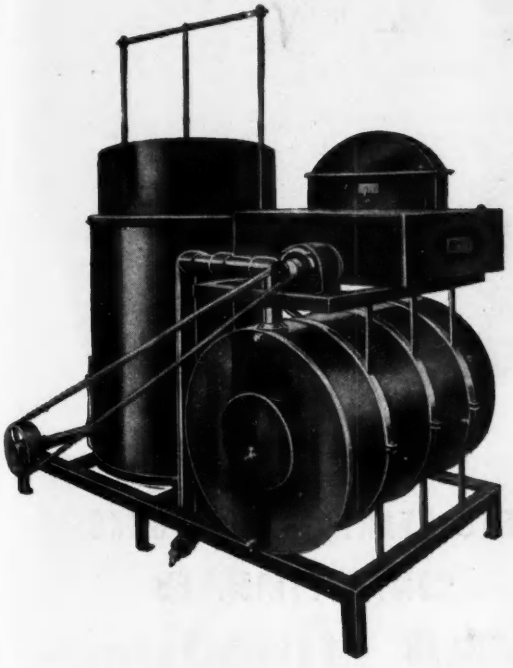

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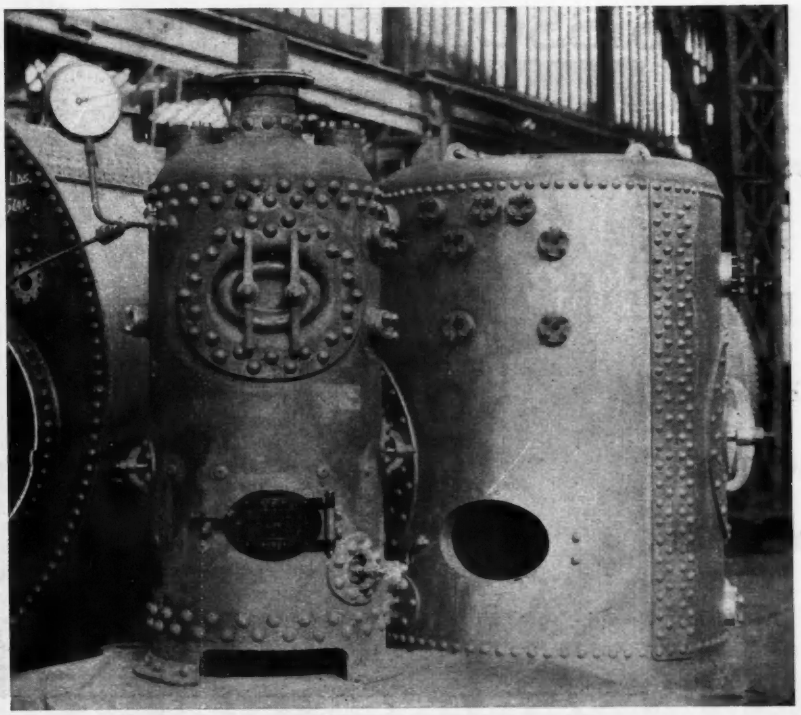

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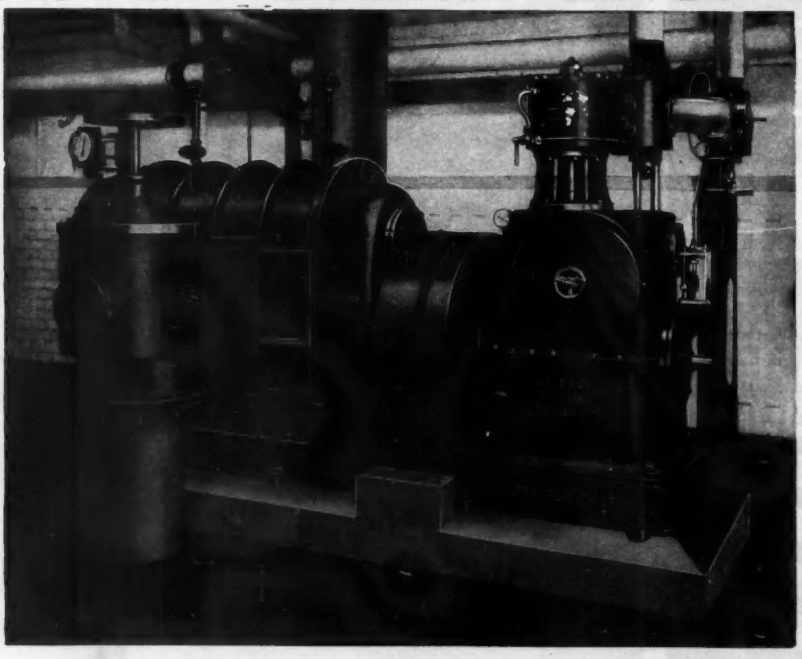

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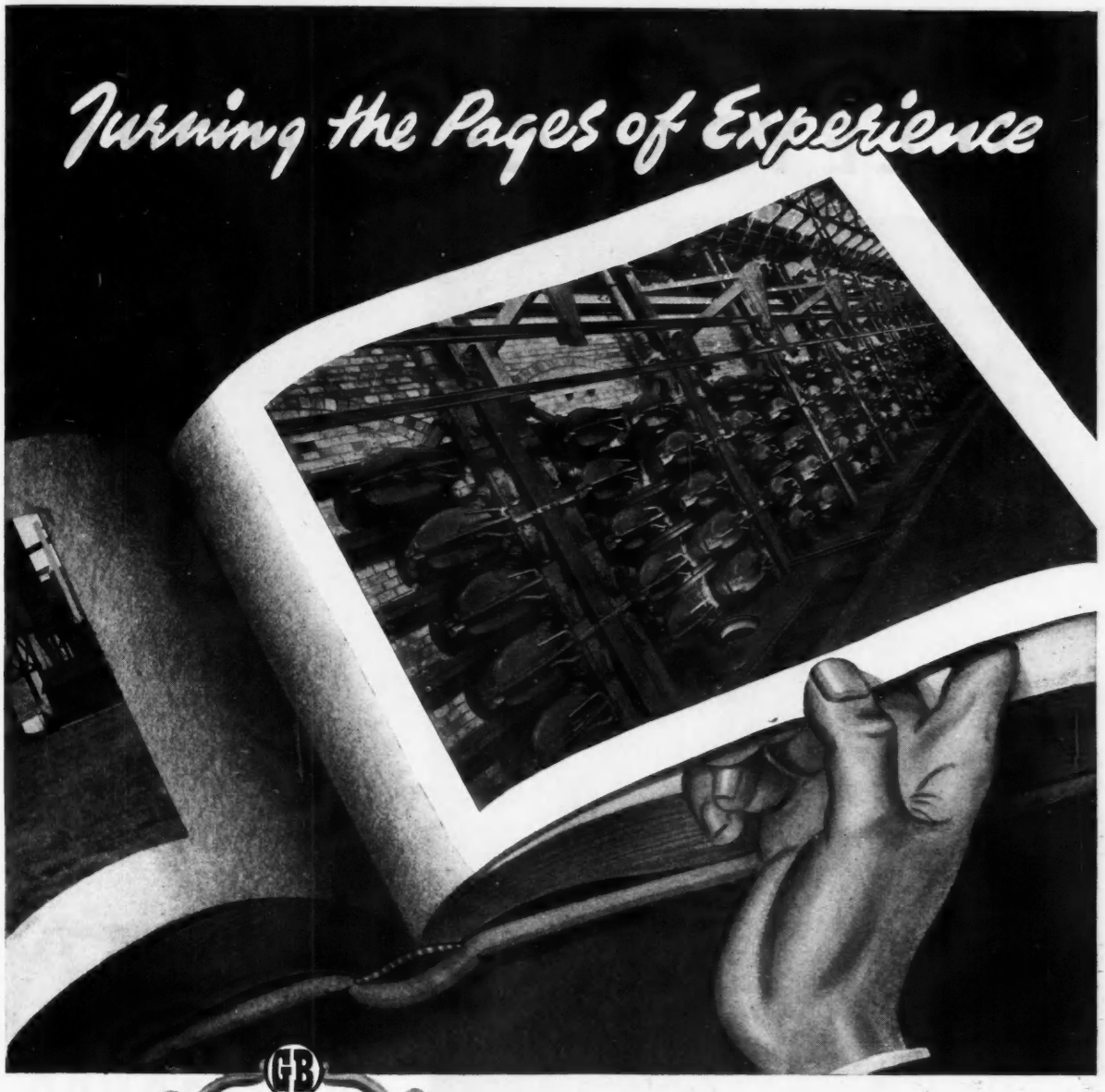

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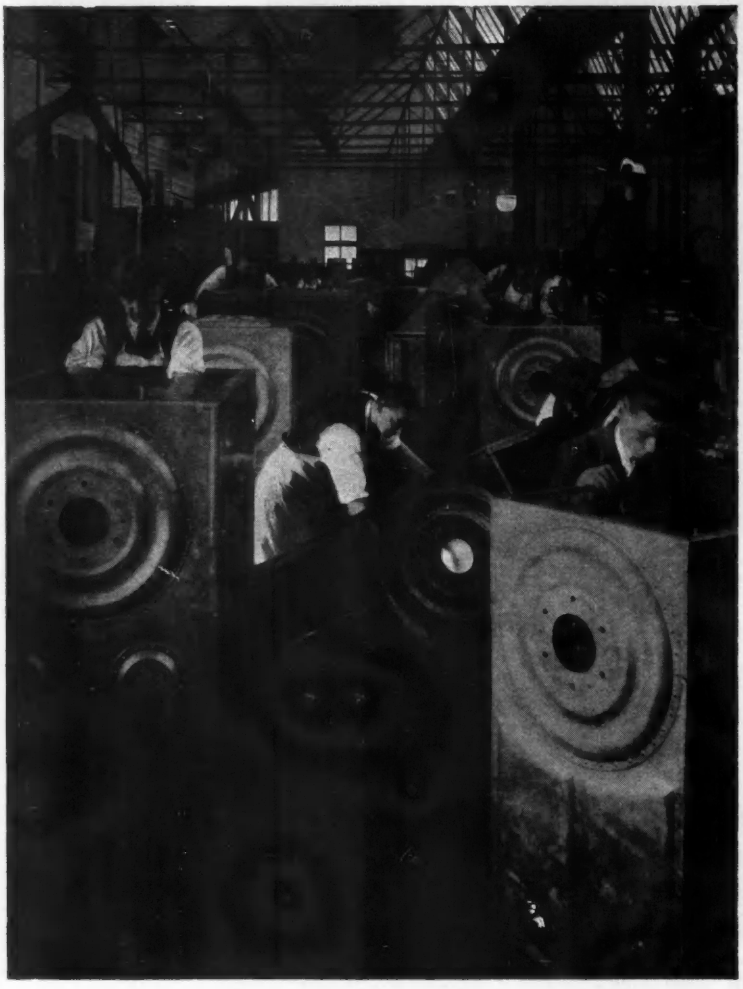

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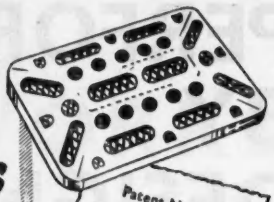

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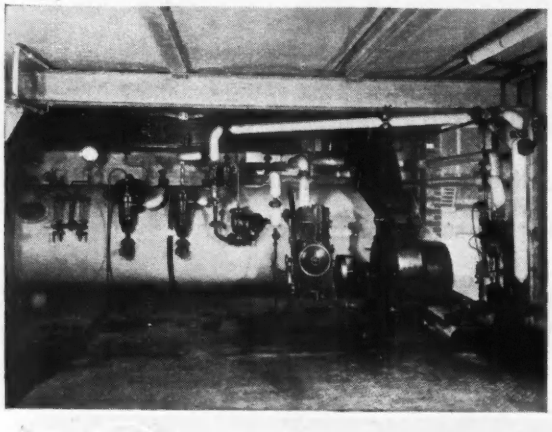

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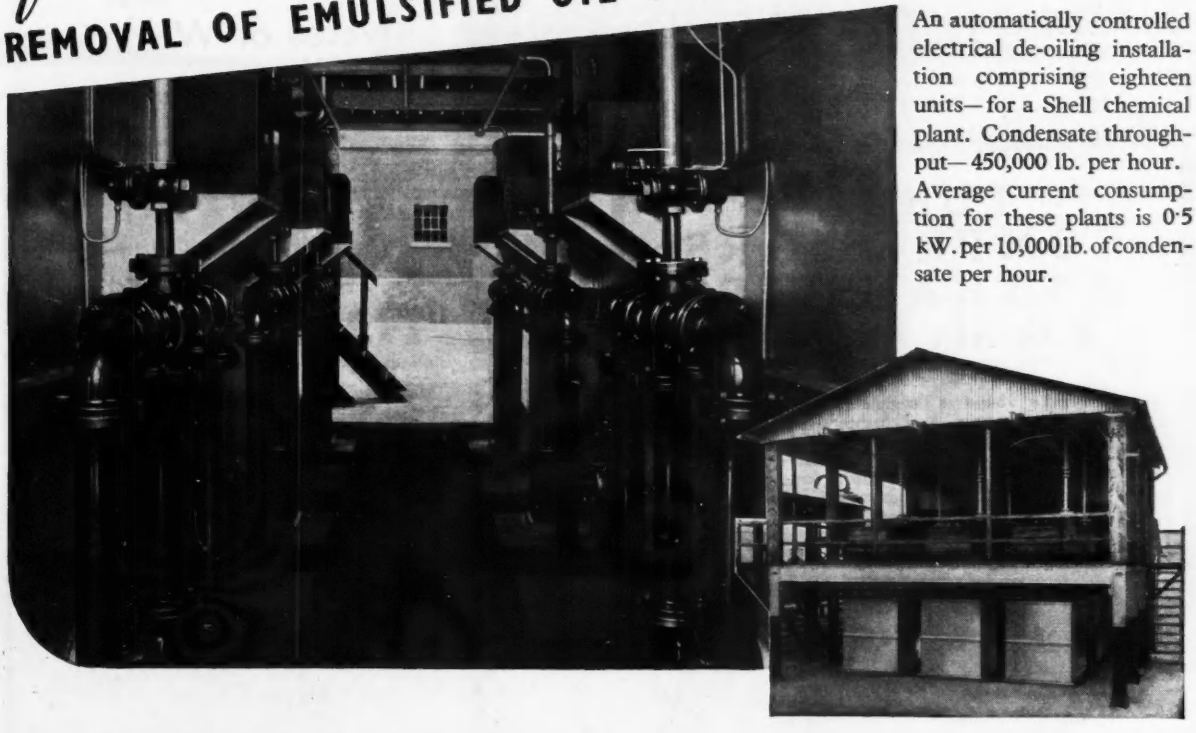

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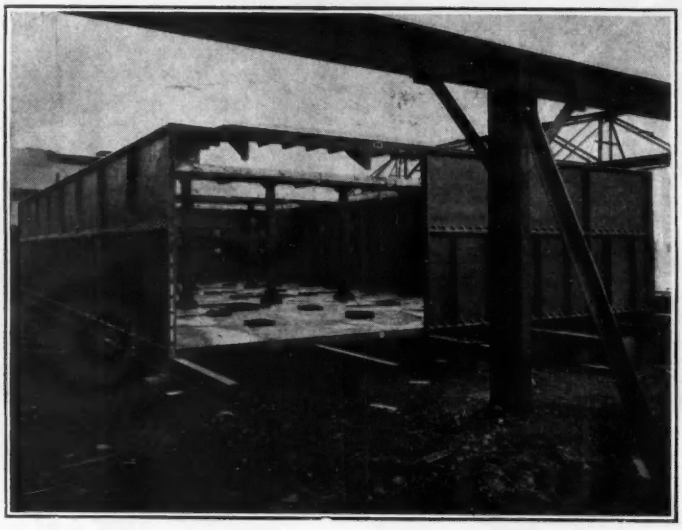

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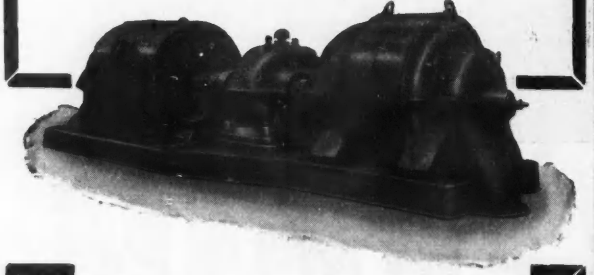

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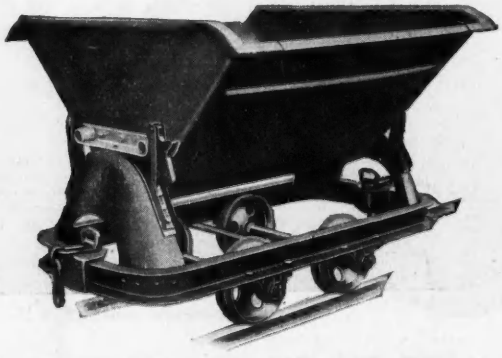

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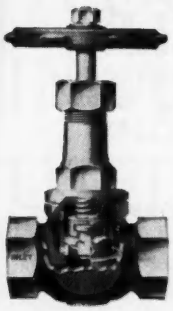

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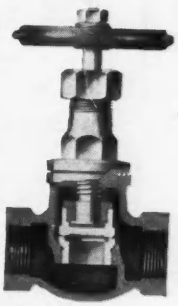

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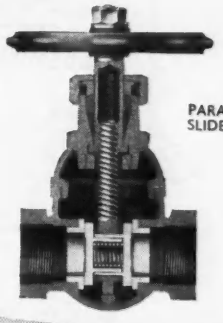

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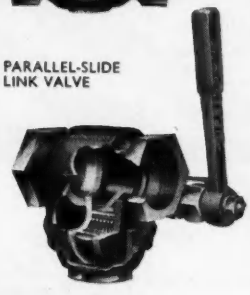

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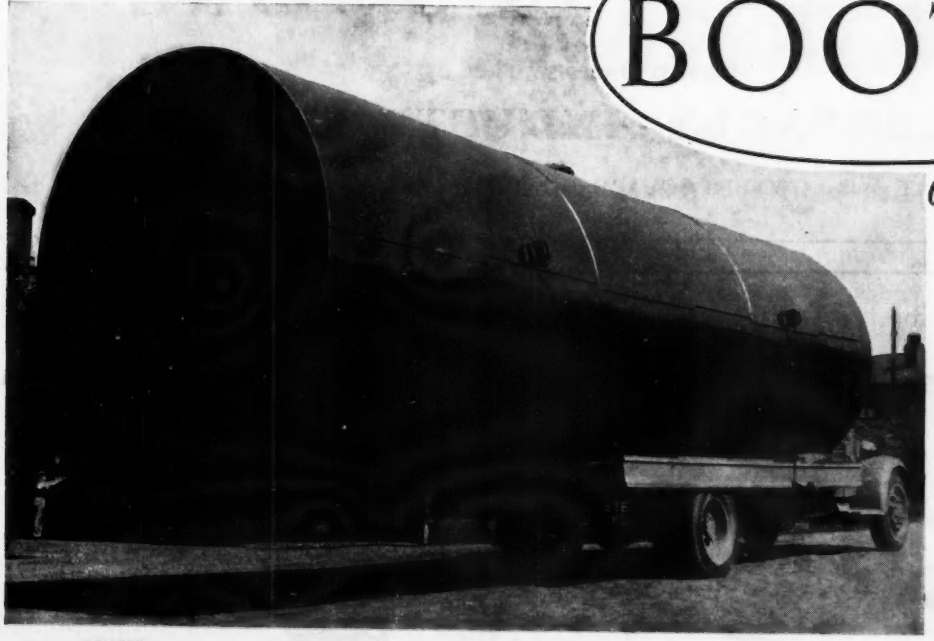

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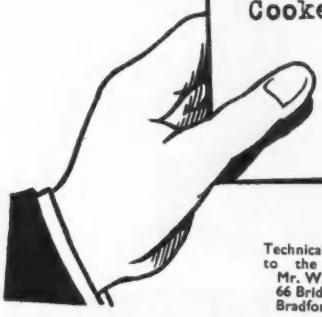

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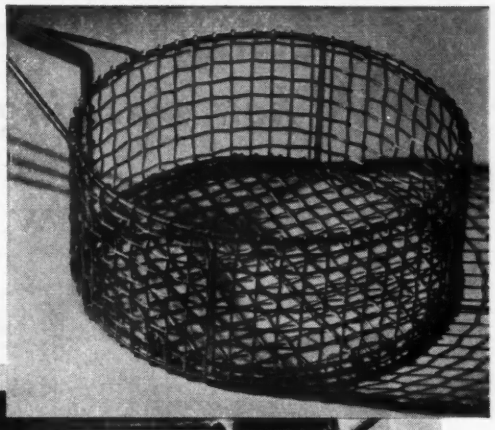

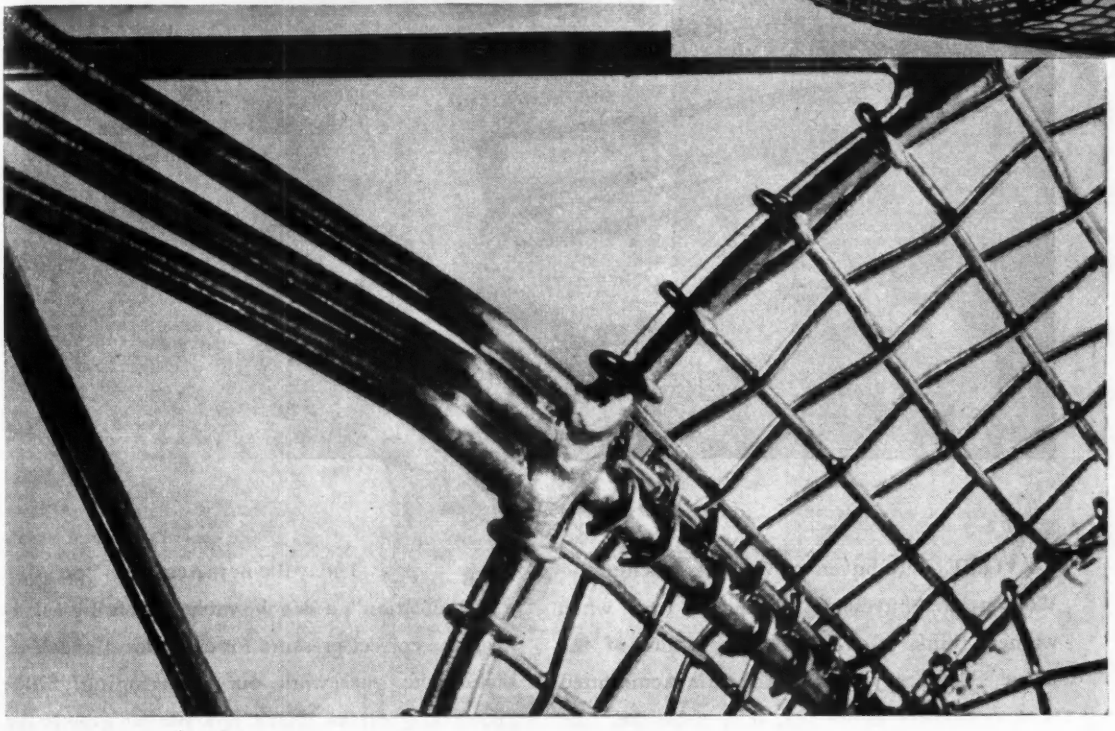

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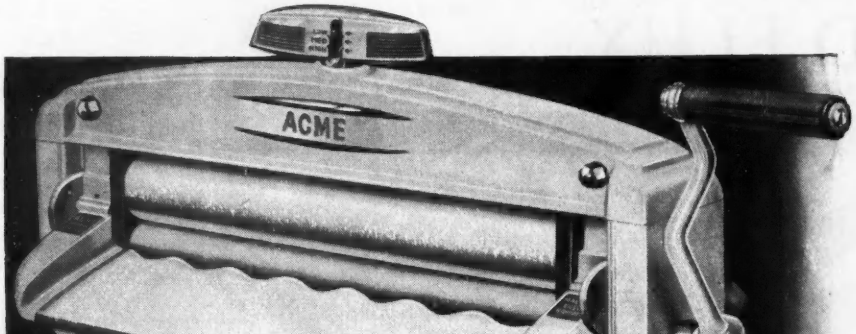

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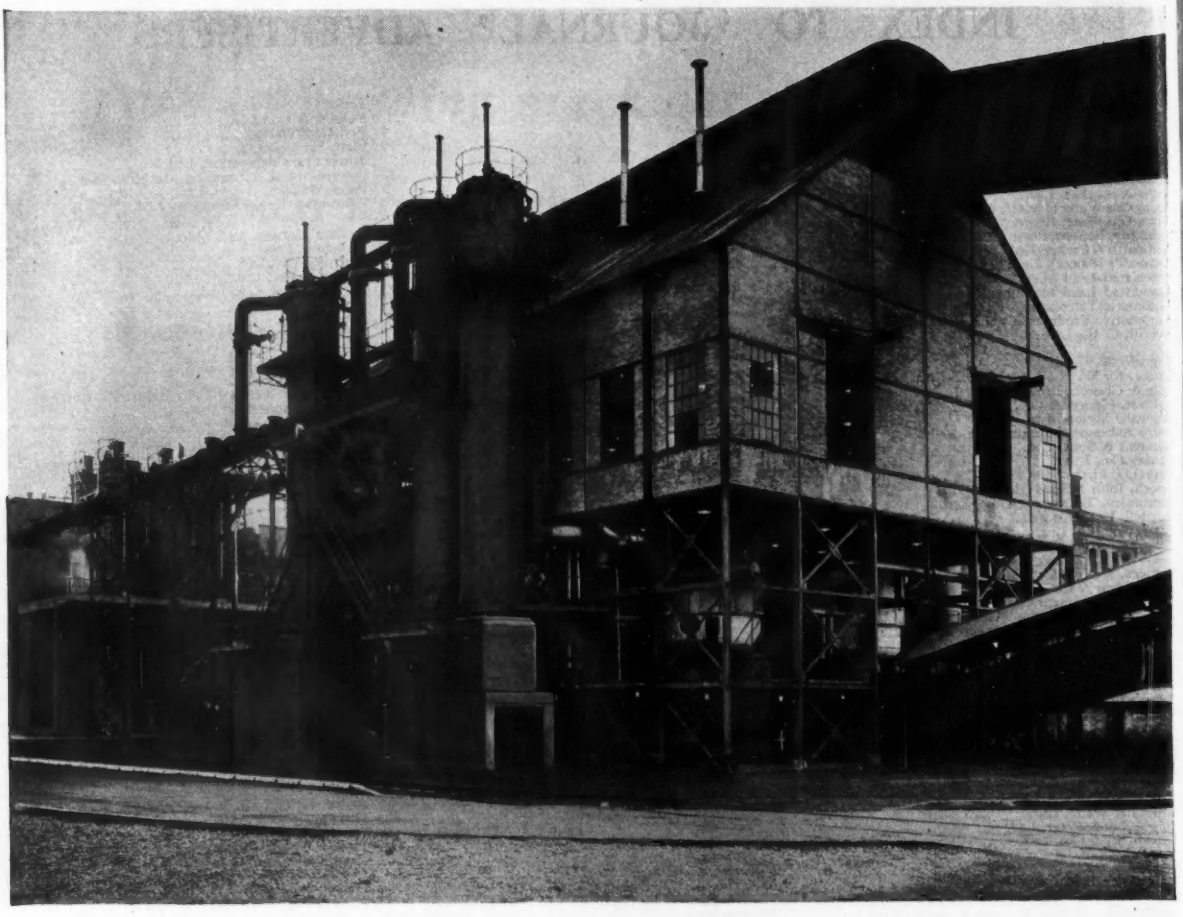

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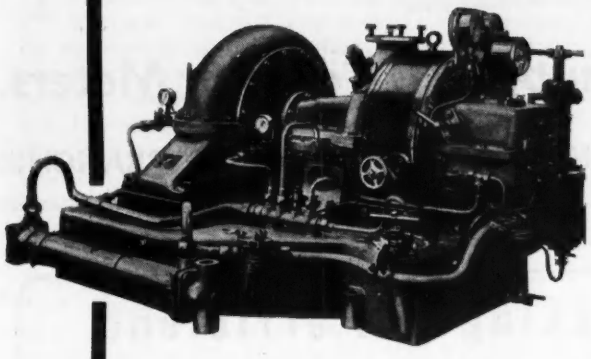

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103rd YEAR OF PUBLICATION

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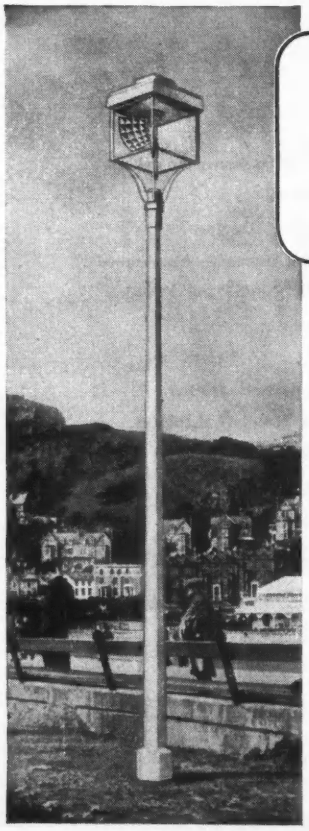

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GAS JOURNAL

VOL. 266. No. 4583 103RD YEAR APRIL 4, 1951

THE MEN ON THE BOARDS

THE fourth of the series of 12 Acton Society Trust research papers dealing with the nationalised industries is devoted to *The Men on the Boards*. Like the three earlier papers on which we have previously commented (January 24, page 211, and February 21, page 473) this study of the composition of the bodies which are responsible for running the nationalised industries is the result of a strictly impartial investigation. Although in its general analysis it discusses only the central authorities of each of the recently nationalised industries, together with the boards of the six transport executives—and therefore excludes the area gas boards and the area electricity boards from critical examination—it presents an accurate picture of the set-up of all the industries concerned. Incidentally it places the Gas Council, the average age of whose 14 members is 51, in the 'younger group' in company with the two air corporations (average age 54), while the British Electricity Authority (average age 60) is in the 'older group' with the National Coal Board (age 58), the Railway Executive (60) and the British Transport Commission (62). The Gas Council, with its 14 members, is the largest of the central bodies, 12 of the members being chairmen of the area boards—themselves autonomous corporations. Of a total area gas board membership of 90, there are 30 full time members. There are three women members in electricity and two in gas—a surprisingly small number for industries which are, more than any other, the servants of the domestic consumer.

About a third of the members of both groups have long experience in local government, often in connection with the two industries while they were under municipal ownership. There are also a number of local government officials on the boards. A high proportion of members were managers or engineers of undertakings nationalised (just over 30% in the case of gas and nearer 40% in electricity). Like the national bodies, each area board has a trade unionist; there are a number of company directors, few civil servants, and very few persons with academic backgrounds.

Steering a moderate course between the extreme points of view represented by the slogans 'jobs for the boys' and 'It's still the old gang' the report mentions four or five 'quite general deficiencies'. It finds that the boards have not succeeded to any marked extent in dispelling the traditional suspicions of employees and in opening up that new era of harmonious co-operation for which some had hoped. Policies are being persisted in which betray a considerable degree of failure to understand the minds of employees. Though all the boards have observed their statutory obligations with regard to the setting-up of joint consultation machinery, there have been instances of failure to raise important topics for consultation until after decisions have been made, and in other cases requests from the employee side to discuss certain matters have been rejected out of hand. Some of the boards have taken a narrow view of their responsibilities in regard to such matters as the provision of training and research, and, in particular, have been reluctant to experiment in this field.

There is evidence, says the report, that boards have failed to appreciate the unique character of the task implied in running an entire industry on a monopolistic basis. It cannot be assumed that methods of organisation appropriate to a large private firm of 20,000 or 50,000 employees are adequate for an industry employing half a million or more. The boards have not always shown the imaginative approach and willingness to experiment with new patterns of organisation and communication for which the situation calls. Comment is made that the annual reports are presented in such a way that the exact figures concerning particular aspects of the boards' activities cannot always be ascertained.

In regard to the first reports of the Gas Council and the area boards, which have been published since the research paper was written, we would, for example, have liked to see the results for all the individual undertakings, but only in the case of the Wales Gas Board has this been accomplished—in a series of expensively printed folding plates. And we should like to see, for

our own particular edification, the amounts expended on area boards' magazines.

The closing chapter of the report discusses the method of appointment of the boards. Ministers were prohibited by the terms of the Acts from appointing a wide variety of board members with experience in different fields; it is also almost certainly true that the Ministers were restrained by fear of public criticism. A section of the Press has always been ready to accuse Ministers of appointing 'deadheads', or to complain that members had no experience of the industry, and even to infer that such appointments were made as a reward for political services. Since the evidence is both that appointments have not had a political character, and that they should actually have had a much wider range, such ill-informed criticism is described as 'destructive and harmful'. It also calls in question the whole system by which appointment is carried out. Also relevant is the difficulty of obtaining men of a sufficient range of experience for the task. 'It is difficult to believe,' says the report, 'that a Minister, whose time is very fully occupied, and who has no staff specially qualified to assist him in selection, can be sure that he has really surveyed all the possible candidates for the post. He is bound to be limited, both in his knowledge of possible candidates and in the number of such candidates he has time to approach. Again, if men are to be chosen for wide rather than specialised qualifications, a potential board member may be suitable for any one of several boards. It becomes necessary to have some central body which can build up records of all likely persons, and assign candidates wherever vacancies occur.'

THE SULPHUR SHORTAGE

BRITISH production of sulphuric acid had to be reduced by one-fifth from January 8—an annual loss of nearly 400,000 tons of acid—and it is not certain that even this reduced output can be maintained. The shortage has already had adverse and far-reaching effects on a wide range of British industries and is in some ways even more serious than the shortage of fuel. Answering a question at the news conference on the Gas Council's report, Colonel H. C. Smith stated that there is not much the area boards can do to relieve the shortage because most of the sulphur produced already goes to the sulphuric acid works. The possibility of extracting sulphur from flue gases is being explored, but Colonel Smith's view is that the units are too small to make extraction practicable.

Twenty-five years ago British industry made 900,000 tons of acid and consumed less than 70,000 tons of sulphur per annum. Last year more than double that quantity of acid was produced, nearly 60% of it being made by burning 360,000 tons of sulphur. Explaining in the *I.C.I. Magazine* how the shortage has come about, Mr. W. A. M. Edwards, Commercial Director of General Chemicals Division, says that in the last few years world consumption has outstripped production, and stocks above ground have dropped considerably. In view of still increasing demands in the United States and the rapid diminution in stocks and proved reserves, the American Government has taken drastic action and placed sulphur under allocation—in other words, sulphur is rationed both to the United States and overseas consumers.

British requirements of sulphur in 1951 were estimated at 400,000 tons of sulphuric acid and 100,000 tons for other products. During the first quarter Britain has received about two-thirds of its quarterly requirements; it is not yet known whether supplies will continue at that rate during the remainder of the year. While there is a cut of about one-third in acid made from sulphur, the overall effect will not be quite so severe, since production from the other sulphur raw materials will not be affected; in fact, the cut works out at 20% on total acid produced. Most industries will feel the cut directly or indirectly. Fertilisers (superphosphate and ammonium sulphate), using about half the total production, head the list of consuming industries, which include artificial silk, dyestuffs, paints, metal pickling, oil refining, and numerous miscellaneous trades. Mr. Edwards says that I.C.I. are already experiencing cuts in raw materials involving the use of sulphuric acid, which is also used in the manufacture of many other chemicals, including saltcake and hydrochloric, formic, and chlorsulphonic acids, shortages of which will affect another group of industries, including rubber, dyestuffs, and pharmaceuticals.

Noting the magnitude of the problem before the British acid industry, Mr. Edwards says plans must be made on the assumption that little American sulphur will be available to Britain for acid manufacture in five to ten years' time. Having regard to the steady increase in our demand for acid, to the need for replacing obsolete plants anyway, it will be necessary to convert existing plants and to build new plants to burn pyrites and anhydrite to the extent of at least 1 mill. tons annual capacity. This figure makes no allowance for any possible savings which may be effected in acid usage, for example, by using calcium sulphate for the manufacture of ammonium sulphate where it is now made from sulphuric acid, or by making for use as a fertiliser nitrophosphates from nitric acid instead of superphosphate from sulphuric acid.

NEW RECORDS

ONLY on rare occasions in these depressing times do we derive such inspiration as was afforded by the speech of Dr. Harold Hartley, Chairman of Radiation Ltd., at the Company's annual meeting in London on Thursday—a report of which will be found on pp. 39-40 of this issue. The policy of the Board of obtaining a large turnover with a small margin of profit and of sharing with customers the gains resulting from improved working has been maintained. Notwithstanding production difficulties in some ways as serious as those with which manufacturers were faced in the early days of the last war, new records have been set up. Average earnings of employees of the Group, numbering 9,360 at the end of December, have increased and are, of course, much higher than they were in 1938. Area gas boards have shared in the Group's prosperity by price reductions. The State as a whole has benefited

financially to a greater extent than ever before, while stockholders receive a return numerically equal to that paid last in 1938, but now paid in depreciated pounds. Gross profit in the year under review exceeded £1 mill. for the first time in the history of the Company, and despite increased cost of materials, and price concessions, the actual profit margin increased somewhat, owing to increased output and improvement in the efficiency of the working of the Group.

When the price of almost every other commodity is soaring it is of particular interest to recall the reduction of 12½% in the price of the Low Price cooker early in 1950, and the arrangements made later in the year to supply enamelled burners to all cookers without additional charge to the purchaser, while a price reduction was made to area boards which had previously purchased the apparatus in its dearer form. The present selling price of the Low Price cooker is only 40% greater than the price which would have been charged in 1938. Production costs rose by 6% between July and December; had the increase been passed on, the domestic user might have had to pay £1 more for the appliance. Since re-arming was envisaged, costs of raw materials have shown a tendency to rise more rapidly, but it is the Company's intention to avoid price increases as long as practicable.

Dr. Hartley referred in some detail to the Company's capital expenditure programme, under which nearly a quarter of a million had been spent during the year. It is proposed, as conditions allow, to invest more of the Company's savings in production plant, while avoiding, as far as practicable, over-expansion in any direction and especially mere *ad hoc* expenditure. Regard is paid both to the return which can be obtained from the money invested and to the potential market to be satisfied. Taking a still wider view, Dr. Hartley stated that the value of exports for the year showed an increase of 10% on those of the previous year. Other countries, like ourselves, are experiencing economic difficulties, but it is hoped, despite the uncertainty of the international outlook, to achieve further expansion of overseas activities in the future, especially in trading with the Dominions.

Changing economic conditions call for a continual overhaul of organisational methods, and substantial co-ordination of effort is being effected throughout the Group so that its operation may be made more effective and more economic than in the past. Steps are being taken to ensure that the best experience in methods of management is applied wherever critical examination suggests that a change is desirable. Dr. Hartley rightly acknowledged the co-operative manner in which all his colleagues had worked to ensure that the Group as a whole should benefit. 'The manner in which re-organisation is being effected', he concluded, 'is an indication of the flexibility of the Group, and it is the wish of the members of the Board—and I am sure it will be that of the stockholders—that we acknowledge our appreciation of the generous support we have received from all our fellow employees; without this, but little could be accomplished'.

In recent weeks we have referred at some length to the first year's achievements of the nationalised gas supply industry. It is a pleasure to be able to refer again to the enterprise and achievement of that side of the industry that is still in the hands of private enterprise, as represented by the largest individual Group. So long as the manufacturers of appliances render to the supply side of the industry the sort of service summed up in Dr. Hartley's able review, we cannot conceive that anyone would even suggest that the Gas Council or the area boards should exercise their power to manufacture their own appliances.

AN IMPRACTICABLE IDEAL

MEMBERS of the Southern Gas Consultative Council spent much time both at their quarterly meeting last Wednesday and at a special meeting a fortnight earlier discussing the establishment of a uniform price for coal delivered to gasworks throughout the country, with the ultimate idea of fixing a nationally uniform price for gas. A Southampton member who had introduced the question at the earlier meeting gave notice of motion for last week's meeting, with a view to submitting the matter to the Minister of Fuel and Power. In his unavoidable absence his seconder moved the resolution and a new member from Andover seconded it, but the outcome of an exhaustive debate was that all but the mover and seconder voted against it. It was pointed out that the price of coal at the pithead was the same for all gas undertakings, with variations only in respect of different qualities, and the argument in support of the resolution was that one nationalised industry should be able to help another to offer uniform terms to its consumers. The overwhelming argument against the resolution was that the policy of the Government required that the National Coal Board, the railways, and the gas industry should all stand on their own feet and that it would be entirely unfair to expect the gas-consuming housewife living near the pits to pay a proportion of the cost of the gas supplied to the housewife on the south coast. A less remote possibility is the securing of more uniformity in gas charges within areas, or even within divisions. In this respect the Southern Gas Board has reduced the number of different basic prices from 100 to 13, and there would clearly be a further saving in accounting if one price were charged throughout a division. Among local grievances mentioned at last week's meeting was that of consumers at Portland who, since the closing of the local works, have derived their supply from Weymouth through a new main in respect of which they have to pay 1½d. a therm more than the Weymouth consumers.

1951 'Journal' Directory

THE following changes have been notified during the past month. To keep the information in the 1951 edition of the *Gas Journal Calendar and Directory* up to date readers are invited to note these alterations (together with the appropriate adjustments in the 'Personnel' section, pp. 137-152):

Pages 35 and 41.—TOTTENHAM DIVISION: F. T. Brookes, *Divisional General Manager and Secretary*, vice W. Hawkyard, *Divisional General Manager*, retired.

„ 114.—KIDDERMINSTER: Delete P. Dougall, *E. M and S.* (retired). (The appointment of J. H. Wainwright as *E. and M.* has already been noted.)

„ 119.—SCOTTISH GAS BOARD: R. H. Bone (not W. D. Bone), *Commercial and Sales Officer.*

„ 129.—SALTCOATS: Delete J. Barbour, *Dist. M.* (retired).

„ 129.—WEST KILBRIDE: Delete A. Young, *Dist. M.* (retired).

„ A7 and A114.—GOODENOUGH CONTRACTORS' MACHINERY, LTD.—Address changed to 70/72, London Road, Twickenham, Middlesex (T/N unchanged).

Letter to the Editor

LIFE OF ELECTRIC MOTORS

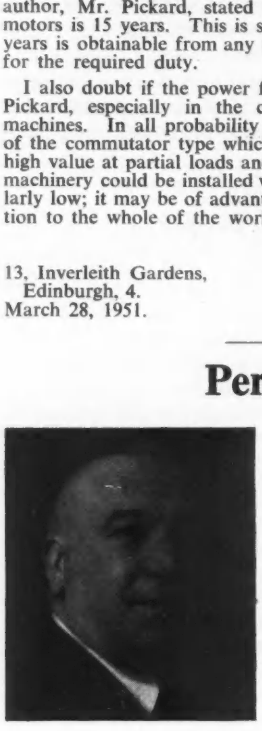
DEAR SIR,—I was surprised to read in your report of the discussion on the paper given at the Wales and Monmouthshire Junior Gas Association (*Gas Journal* of March 14) that the author, Mr. Pickard, stated that the average life of electric motors is 15 years. This is surely incorrect; a life of 25 to 30 years is obtainable from any motor which is of a type suitable for the required duty.

I also doubt if the power factor is as poor as stated by Mr. Pickard, especially in the case of medium and large size machines. In all probability a variable speed motor would be of the commutator type which maintains its power factor at a high value at partial loads and speed. Power factor correction machinery could be installed where the power factor is particularly low; it may be of advantage to apply power factor correction to the whole of the works electrical system.

Yours faithfully,
M. BURNBY.

13, Inverleith Gardens,
Edinburgh, 4.
March 28, 1951.

Personal



Mr. F. Bowen has been appointed to the Board of Radiation Group Sales, Ltd., and will be in charge of the Solid Fuel Division. He joined the Radiation organisation in June, 1927, as Secretary of the John Wright group of companies in Birmingham. In April, 1938, he transferred to the associated Company at Leeds—Wilsons & Mathiesons, Ltd.—of which he became Managing Director. Mr. Bowen's many friends in the industry will wish him well in his new appointment.

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Colonel John Kennington, D.S.O., M.C., J.P., who retired on Saturday after nearly 50 years' service with the Grimsby undertaking, was the guest of the Grimsby and Cleethorpes employees of the East Midlands Gas Board on March 28, when he was the recipient of a presentation as a mark of their goodwill and affection. The presentation was made by Mr. William Sayner, Deputy Engineer to Mr. Kennington for many years, and a colleague with the Grimsby undertaking for 46 years, and comprised a sundial and a bird bath in stone, which had been chosen because Mr. Kennington is a very keen gardener. Mrs. Kennington was presented with an ornamental jug in teak, brass and copper, and Miss Audrey Beels, a member of the Accounting Staff, handed over a bouquet of tulips and other spring flowers. Mr. Kennington expressed his thanks and referred to his long association with the Grimsby undertaking, and particularly to the loyalty and team spirit he had known since his appointment as Manager in 1929. Mr. Bernard Clarke, General Manager of the Lincolnshire Division, said that not only had Colonel Kennington built up a great reputation locally, but also he had become a leading figure in the gas industry throughout the country. Among those present were Mr. and Mrs. W. R. Smout, Mr. and Mrs. G. Davies, Mrs. W. Sayner, Mr. F. Janney, and 120 guests.

Obituary

Mr. S. E. Cash, who died on March 26 after a short illness at his home at Wallington, Surrey, aged 72, was Chairman of United Gas Industries, Ltd., and a Director of all the companies in the Group. The National Gas Council had the benefit of his legal advice for many years prior to its merger with the British Commercial Gas Association to form the British Gas Council, and he was also professionally associated with a number of gas companies before nationalisation. He was a brother of Mr. William Cash, J.P., F.C.A., past President of the British Commercial Gas Association and Chairman and Director of many pre-nationalisation gas companies, whose death occurred on Christmas Day, 1950.

◇ ◇ ◇

The death occurred on March 21 of **Mr. J. Aspinall,** Director and Secretary of Robert Dempster & Sons, Ltd., at the Halifax General Hospital, following a short illness. Mr. Aspinall had been with the Company for almost 50 years.

◇ ◇ ◇

The death occurred on March 22, as a result of a motor-cycle accident, of **Miss A. C. Iliescu,** a daughter of General Iliescu, who was at one time medical adviser at Rumanian Army headquarters. Miss Iliescu took degrees in Physics, Chemistry, and Theology at Bucharest, and was a Doctor of Philosophy of Oxford University. After the war, in which she served in the W.A.A.F. from 1941 to 1946, attaining the rank of Section Officer, she joined the scientific staff of the Gas Research Board, and was latterly engaged, at Beckenham, on problems of combustion research.

Diary

April 6.—Institution of Gas Engineers (Midland Section): Annual General Meeting, Queen's Hotel, Birmingham, 2.30 p.m. (preceded by luncheon, 12.45 p.m.).

April 6.—Institute of Fuel: 'Integration of Gas Supplies in South Wales,' by a nominee of the Wales Gas Board; South Wales Institute of Engineers, Park Place, Cardiff, 6 p.m.

April 6.—London and Southern Junior Gas Association: 'The Rating of Domestic Solid Fuel Appliances,' Dr. F. J. Eaton, PH.D., 178, Edgware Road, W.2, 6.30 p.m.

April 7.—Scottish Junior Gas Association (Eastern District): Visit to Granton Gasworks, and paper by T. R. Cameron.

April 9.—West Midlands Gas Consultative Council: Victoria Hotel, Lichfield Street, Wolverhampton, 2.30 p.m.

April 10.—Chemical Engineering Group (Society of Chemical Industry): 'Man and the Chemical Industry; A Consideration of Physiological Adaptability,' Dr. M. W. Goldblatt, Geological Society's Rooms, Burlington House, W.1, 5.30 p.m.

April 11.—Gas Research Board: Annual General Meeting, Gas Industry House, 2.30 p.m.

April 11.—Institution of Gas Engineers and Low Temperature Group of the Physical Society: Joint Meeting. 'The Use of Stored Liquid Methane to Meet Peak Loads at Gasworks,' G. G. Haselden, PH.D., D.I.C., A.M.I.CHEM.E., and M. W. Reis, B.SC., A.C.G.I., at Institution of Mechanical Engineers, Storey's Gate, 5.30 p.m.

April 12.—Industrial Gas Development Committee: Gas Industry House, 9.30 a.m.

April 13.—Scottish Junior Gas Association (Western District): Annual General Meeting and election of office bearers, Royal Technical College, Glasgow. 5.30 p.m.

April 13-14.—British Gas Staff Association: Annual Conference. Church House, Westminster, 10.30 a.m. each day.

April 17.—Institute of Fuel: 'Production of Town Gas from Weakly Caking Coals,' Dr. J. G. King, at Institution of Mechanical Engineers, Storey's Gate, 5.30 p.m.

April 18.—Manchester District Junior Association of Gas Engineers and Yorkhire Junior Gas Association: Annual Joint Meeting. 'The Use of Gas in the Cotton Industry,' W. F. S. Howell (Manchester); visit to Wigan gasworks.

April 18.—Midland Junior Gas Association and Eastern Junior Gas Association: Joint visit to Luton (Skefko Works during the morning and Electrolux, Ltd., during the afternoon).

April 20.—London and Southern Junior Gas Association: Annual Reception and Dance, Caxton Hall, Westminster, 6.30 p.m.

May 1.—East Midlands Gas Consultative Council: Meeting. Victoria Station Hotel, Nottingham, 2.0 p.m.

When the New System of charging for gas street lighting introduced by the Northern Gas Board was considered by the Carlisle City Council, Mr. A. C. R. Punnett (Chairman of the Finance Committee) said that unless the Gas Board changed its attitude, local councils would have to consider changing over to electric street lighting. The City Council is objecting to the method of classing every lamp as a separate unit in compiling charges.

A Cargo of American Coal arrived on March 27 to help out the Dublin gas supply—7,000 tons by the American ship Fermgulf. This is equal to about three weeks' supply in normal times, but the bitterly cold weather is making demand above the average. Three Polish ships also unloaded the same day about 8,000 tons for Dublin importers. To make up for the cut in British imports at least 70 ships will be required to bring American coal to Ireland. Dublin Gas Company is rationing coke.

Stockton-on-Tees Town Council, who protested to the Northern Gas Board about the new system of charging for gas street lighting, has been informed by the Board that the new system is not inequitable in its application. The Board stated that tariffs are arranged to produce a certain overall revenue and even if Stockton Council's plans for a separate tariff system were introduced, they would not mean any saving. Stockton Council has referred the matter to the Gas Consultative Council. Felling-on-Tyne Urban Council has decided not to object to the new prices.

News in Brief

The Price of Gas was increased from 1s. 6½d. to 1s. 8d. per therm by the Alliance and Dublin Consumers' Gas Company on Good Friday. A statement by the Company indicated that the increase was due to higher costs of coal, oil, and labour.

Gas Staff Conference.—The annual conference of the British Gas Staff Association will be held at Church House, Westminster, on April 13 and 14, starting each day at 10.30 a.m. Mr. Bob Edwards, General Secretary of the Chemical Workers' Union, has promised to speak on 'Industrial Democracy in Nationalised Industries,' at 3.30 p.m. on the first day of the conference.

Sagem Golfing Society.—The spring meeting of the Sagem Golfing Society will be held on May 3 at Berkshire. Any member of the Society who has not received notice, or any member of the London and Southern Section of the Institution of Gas Engineers who would care to join or to play in the meeting should communicate with the Hon. Secretary, Mr. L. Trewby, St. Petrocks, 65, Nightingale Road, Rickmansworth, Herts.

The Leicester Branch of the Women's Gas Federation was visited by Dame Vera Laughton Mathews, D.B.E., at the first annual general meeting on February 22. Within a few seconds of her opening sentence Dame Vera had the attention of every member when she suggested that a resolution be sent to the Government petitioning for the removal of purchase tax on all water heaters. This was acted upon immediately after her talk.

Babcock and Wilcox, Ltd., have sent south from Renfrew a large fractioning column to the new refinery at Stanlow, Cheshire. This unit was sent in two sections, the first 80 ft. long and 90 tons in weight, the total weight being 200 tons and the height of the column, when erected, 168 ft. Scottish plants have done much of the work of construction of such towers in the refinery projects which have been put into operation in Britain in recent years.

Pay Increase for Maintenance Workers

Representatives of the Confederation of Shipbuilding and Engineering Unions have accepted an offer from the Gas Council for an increase of 2d. an hour for maintenance craftsmen in the Metropolitan area and the provinces. The increase will operate from April 1. About 10,000 workers will benefit by the increase.

North British Association

Details are to hand of the spring meeting of the North British Association of Gas Managers, to be held at the Dunblane Hotel Hydro, Dunblane, on April 27, under the Presidency of Mr. Fred R. Mitchell, Group Manager of the Lanarkshire Group, Scottish Gas Board.

Mr. Mitchell will deliver his Presidential Address at the meeting which starts at 10.30 a.m., and the official luncheon will follow at 12.45 p.m. Luncheon tickets, 12s. 6d., should be obtained from the Secretary, Mr. Athol W. Brown, Gasworks, Alloa.

The golf competition for the Winson Scott Cup will be held over the course of the Dunblane New Golf Club on April 26, play beginning at 9 a.m. Members and visitors who intend to participate should advise the Hon. Secretary of the Golf Circle, Mr. W. P. Rae, New Grange Works, Edinburgh, 11, not later than April 18.

Preliminary notice has also been given of the 90th Annual General Meeting at Ayr on September 6, preceded on September 5 by the competitions arranged by the Golf and Bowling Circles, and followed on September 7 by the annual excursion. In view of the heavy demand for accommodation at Ayr during September, members have been advised to make early reservations.

YORK—HARROGATE GROUP GATHERING

THE second annual whist drive and dance organised for employees of the York-Harrogate Group of the North Eastern Gas Board was held in the beautifully appointed Royal Hall, Harrogate, on Friday evening, March 9.

This very successful event not only attracted employees from Harrogate, York, Scarborough, Ripon, Filey, and Thirsk, but was also attended by officials and staffs from the Board headquarters, Leeds, and group managers and their staffs from Leeds, Bradford, and Wakefield.

In order to give the 700 dancers a completely non-stop programme, the whist was played in an adjacent hall, and at the conclusion of play prizes were presented to the winners by Mrs. Currier, wife of the Deputy Chairman of the Board, Mr. G. E. Currier, O.B.E. Mr. N. C. Sturrock (Group General Manager, York-Harrogate Group) extended a welcome to Mr. and Mrs. Currier and expressed thanks on behalf of the Group Social Committee to Mrs. Currier for presenting the prizes. A bouquet was presented to Mrs. Currier by Miss Shirley Dobson on behalf of the Social Committee.

Our photograph (left to right) includes: Mr. A. McDonald (Member, North Eastern Gas Board); Mr. F. Ward (Secretary, Group Social Committee); Mr. H. Johnstone (Chief Engineer, N.E. Gas Board); Mr. G. E. Currier, O.B.E. (Deputy Chairman, N.E. Gas Board); Mr. N. C. Sturrock (General Manager, York-Harrogate Group); Mr. N. A. Walker (Chairman, Group Social Committee). Seated: Mrs. Currier and Mrs. Johnstone.

'Bridging the Gap'

WALES FACES £400,000 INCREASED COSTS

FACING increased costs totalling £401,164, the Wales Gas Board consider it essential to meet £325,000 of this sum by increasing the price of gas by a 1½d. per therm. The Wales Gas Consultative Council approved this increase at a special meeting in Cardiff on March 19, Alderman G. F. Hamer (Llandidloes) presiding.

The 1½d. includes the ½d. increase which the Council recently accepted because of rising coal costs, and comes into effect from April 1.

Presenting the Wales Gas Board's case for the increase, Mr. T. Mervyn Jones (Chairman of the Board) submitted details of additional costs which the Board would have to meet between 1951 and 1952, totalling £401,161.

The product of the 1d. per therm on the sales of gas in the whole of the Board's area was £293,104. Allowing for ceiling prices and for restricted application of the present advance to certain industrial consumers the net yield of 1d. per therm would be £260,005.

The Board, taking into account the advantages arising from integration and increased efficiency, expected to achieve further economies in operation which would absorb £75,000 of the £401,164.

The ceiling price, added Mr. Jones, which was fixed at 1s. 9d., would be raised to 2s. In any undertaking where price of gas was 2s. or more this increase would not be imposed.

Out of the £401,164, Mr. Jones said £325,000 was a 'hard core' equivalent to an increase in the price of gas by 1½d. per therm. Speaking of the Board's surplus of £25,00, Mr. Jones observed that consumers would benefit by it, but at the same time it was not large enough to cover rising prices in goods over which the Board had no control.

There were only twelve of the Board's 105 undertakings where the price of gas was 2s. or above. They were Milford Haven, St. David's, Llangollen, Presteign, Hay, Menai Bridge, Rhayader, Portmadoc, Llandilo, Cardigan, Llandidloes; and Knighton. These were the twelve smallest undertakings.

The increase would mean about 2½d. more a week to the housewife.

SCOTTISH LOSS TO BE MADE GOOD

THE Scottish Board state with regret that a widespread increase in gas prices is necessary. During 1949-50 they worked at a loss of £284,000 which will have to be made good. They hope that the income will cover the expenditure in 1950-51, but there has been a series of changes which involve a substantial increase in expenses.

The biggest of these is the very recent rise of 4s. 2d. per ton in coal. This involves an increase of about £500,000 in charges; a considerable amount of this can be met by increased charges in coke, if the demand is sustained; the Board have to use an increasing amount of coke for gas production, but the rise in coke prices might secure as much as £250,000, leaving £250,000 as an estimate of the increased cost of coal. An increase in wages made from April, 1950, has involved over £100,000. A further increase has recently been given throughout Great Britain to maintenance workers and some adjustment will have to be made with other workers. With the 1950 increase and the present one the additional charges per year will be about £250,000. The increase in transport charges made last year will cost in a full year about £150,000 and the dependence of the gas industry on appreciable quantities of English coal involves an addition to transport charges on coal of nearly £100,000. Further serious increases have been made in the price of gas oil; the increases during this year are likely to involve additional costs of about £70,000 a year. In addition, the Gas Board has to face charges due to the rise in price of various materials.

The Board have therefore decided to increase the price in nearly all the leading places by 1d. a therm. This will mean an increase varying from 1/12th to 1/15th in all the cities and the leading towns and will apply to 48 places. In another 74, where price is charged per 1,000 cu.ft., the increase will be 4d. per 1,000 cu.ft., which is a close approximation to (but a shade less than) 1d. per therm. In 52 places, where prices are up to 8s. 4d. or more per 1,000 cu.ft., there will be no increase; in one place the increase will be only 3d. per 1,000 cu.ft. In 18 places, where income has been markedly short of expenditure, larger increases will be necessary. These particulars relate to the top prices and in almost every case the increase is equal on all prices, but in a few smaller places some adjustment of lower prices will be made.

The increase in income to be secured cannot be closely estimated, as consumption varies and there are a number of factors whose operation cannot be confidently predicted; but the Board hope for an increase of about £750,000. The exact increases in price will be advertised; they will not apply to any gas already supplied nor will they apply to gas consumed before the next reading of the meter.

EAST MIDLANDS 10% UP

AS briefly announced last week, the East Midlands Board gave notice on March 24 that as from the reading of the meters or collection made next after March 26, the prices charged for gas to all consumers within the Board's area of supply (with the exception of those supplied under the terms of special agreements) would be increased by the addition of 10% to the existing prices charged for gas as set out in the published tariffs.

The methods by which and the principles on which the charges for gas are made remain unaltered and are as fixed by the published tariffs. Gas now being supplied under special agreements will continue to be supplied in accordance with and subject to the provisions of such agreements.

The increase relates solely to the prices for gas, including the standing charge where gas is supplied on a two-part tariff. It will not be applied to prepayment supplements or to meter or appliance rentals.

The increase of 10% on the prices of gas has been made unavoidable by the continual rise in costs. Details of increased costs which have arisen since the tariffs were varied in 1949 (in round figures) are as follows:

	£
Coal	375,000
Less increased revenue from coke ...	185,000
Net increased cost of coal	190,000
Gas oil—Increases not previously allowed for	314,000
Cost of new agreements relating to wages and salaries	241,000
Railway freight charges as from May 15, 1950	166,000
Miscellaneous materials purchased by the Board	400,000
Provision for increased cost of coke oven gas	185,000
Increased cost of transport owing to petrol tax and vehicle tax and increases in the price of petrol ...	40,000
	£1,356,000

Negotiations are in progress with the National Coal Board for future supplies of coke oven gas, and it seems inevitable that higher prices will have to be paid by the Board than have obtained up to date. Furthermore, although it is not yet possible to estimate a figure, a further increase in the cost of coal to the gas industry and in the cost of transport of coal and other materials by rail might well arise in the near future. The Board must also make provision for an adequate reserve fund.

This is an interim increase to bridge the gap between the increased costs and present revenue until the Board can introduce more scientific forms of tariffs, which will eliminate, at any rate, some of the differences which at present exist in the charges for gas in neighbouring towns.

The increase of 10% is estimated to bring in about £1 mill. The Board hopes to absorb the remaining costs, at present estimated at £350,000, without taking any further increases into account, by the economies, increased output, and more efficient methods of production which have been effected since the Board took control of the gas undertakings in the area.

Improving Supplies in Sunderland Division

ALL RECORDS BROKEN

IN a report on developments and plans to improve supplies, Mr. W. O. Kirkwood, General Manager of the Sunderland Division, Northern Gas Board, told members of the Sunderland Consumer Committee of some of the schemes which will go far towards removing complaints about low pressures.

In the Sunderland unit, building schemes nearing completion at Thorney Close and Pennywell have imposed a heavy load on the western section of the Sunderland low pressure system, including East Herrington. Good progress is, however, being made with the laying of two 8 in. high pressure feeder mains which will augment pressures in the area through suitable regulating equipment sited on the estates. Completion is expeted during the next two months.

Following complaints regarding inadequate pressures in the Ryhope district, a high pressure improvement scheme was approved by the Board and materials have been placed on order and negotiations opened for a suitable governor site. Delivery of materials and acquisition of the site are expected in the near future.

Mr. Kirkwood said that at Washington increasing local demand had rendered existing gasholder capacity totally inadequate. An improvement scheme had been approved by the Board to erect on a new and more spacious site at Washington a gasholder of 250,000 cu.ft. capacity to replace the present storage. Subject to the necessary Town Planning consent being secured in reasonable time, it is expected that erection of the holder will begin during the summer of 1952.

Coke Oven Gas

Mr. Kirkwood stated that the Board has sanctioned a scheme for the laying of a 12 in. high pressure main over a distance of 7¼ miles for the conveyance of gas from the Brancepeth coke ovens to the Durham City works. This main will form part of the projected mid-Durham gas grid. The supply of gas from this source will replace ultimately part of the gas at present being taken from the Stella Gill coke ovens to Durham. Subject to satisfactory assurances as to the future of the Stella Gill coke ovens, it is intended to divert part of the Stella Gill output, via the Chester-le-Street unit, in a westerly direction towards Stanley and Annfield Plain. Implementation of the Brancepeth main which may take 18 months to two years, is dependent on delivery of essential materials and equipment.

Turning to the Stanley unit, Mr. Kirkwood said that it was expected to make a start in about three months on the laying of an 8 in. interlink main between Stanley and the Dipton works at Annfield Plain. In pursuance of the Board's policy of economic and physical integration, it was intended by the operation of this main to concentrate gas manufacture at Stanley works and to use Dipton purely as a gasholder station. This would result in rationalising manufacturing costs and regulation of gas quality.

Of the Grahead unit, Mr. Kirkwood pointed out that difficulty had been experienced in maintaining adequate gas pressures during times of peak demand. After careful examination of the problems involved, the Sunderland Divisional Management Committee had decided to implement supplies to the area by means of a 6 in. branch high pressure main supplying gas from the existing Chester-le-Street system, at present terminating at Handen Hold gasholder station. Work is to start as soon as delivery of materials and equipment permit.

At Consett a considerable amount of work has been carried out on trunk mains. Heavy chemical deposits had seriously affected carrying capacities and it was decided to proceed with the cleaning by means of specialised equipment of some 3,200 yd. of main, varying in size from 5 in to 12 in.

Changed Boundaries

Mr. Kirkwood disclosed that the Chester-le-Street area, at present under the control of the Newcastle Division, was being transferred to Sunderland Division, thus completing the original structure and boundaries of the Sunderland Division, apart from Lanchester (under the control of the N.C.B.). In the Chester-le-Street area there are 2,000 ordinary and 5,500 prepayment consumers and the estimated quantity of gas sold during 1950 was 197 mill. cu.ft. The Chester-le-Street works is at present a coke oven gas purification and gasholder station only and it is envisaged that this unit may play an important part as a purified gas distributing centre when the proposed mid-Durham gas grid system reaches maturity.

Referring to some of the development schemes now in progress, Mr. Kirkwood said that in the Sunderland unit the construction of a 750,000 cu.ft. per day C.W.G. plant will be completed during the summer at the Ayre's Quay works, Sunderland. At the Hendon works an effort is being made to provide a further six beds of horizontal retorts. The reinforced concrete foundation for the new 2½ mill. cu.ft. gasholder at the Hendon works is complete and the contractors are preparing to start erection of the steel tank. The completion of this gasholder will not provide additional storage at Sunderland until late 1952. At Stanley unit an additional bed of horizontal retorts is now in course of construction and with the completion of this plant the production capacity of the Stanley works will be increased by 20%. At Consett, with the completion of the contract for the installation of new coal handling and carbonisation plant the production capacity of the Shotley Bridge works will be increased by 30%. The new plant is scheduled for completion next January.

'The increased demand for gas for domestic and industrial purposes is continuing and during the last few months all previous records have been broken,' declared Mr. Kirkwood. 'At Sunderland during December the output of gas showed an increase of 9% over the previous year and during January and February the increase was 8% and 4% respectively.'

New Salesmen's Circles

APRIL *GAS SERVICE* REPORTS

SALESMEN'S Circles are on the increase. Following the publication in the March issue of *Gas Service* of reports of the launching of three sales groups—serving the Northern Gas Board, the North Eastern Gas Board, and the Sheffield and Rotherham Division of the East Midlands Gas Board—the April issue will contain news of further additions to this revised family of sales groups.

The Eastern Gas Board now has a Salesmen's Circle for each of its five divisions, the latest members being the Ipswich and Norwich Divisional Circles. The former has as its Chairman Mr. R. S. Falkner, Divisional Sales and Service Manager, and at the inaugural meeting an address was given by Mr. W. J. Collins Garrard, Divisional General Manager. This will be reported at some length, as will be the address given by Mr. R. A. Weston, Divisional General Manager to the Norwich division, at the Divisional Circle's inaugural meeting; this Circle has Mr. J. T. Brookes, Divisional Distribution Engineer and Sales Manager, as Chairman.

The East Midlands Gas Board's new Circle held its first meeting at Leicester, with Mr. J. B. Walsh, Divisional Distribution Engineer, in the chair. An address was given by Mr. W. A. Pask, Sub-Divisional Manager of the Leicestershire and Rutland sub-division, and this, too, is reported in full.

Other Circle news comes from Wales, where new groups are being formed, and from the North Thames and West Midlands Gas Boards. A lengthy paper to the latter Circle, which will be published in the April issue, is likely to cause some interest. Entitled 'Sales and Service Organisation at Birmingham,' it is a remarkably clear description of the complex network governing Birmingham's sales force; the author is Mr. H. A. Edkins, Personal Assistant to the Sales and Service Manager of the West Midlands Gas Board.

This Circle news will, however, constitute only a fraction of the bill of fare for the next *Service*. Illustrated reviews of the Ideal Home and Watson House Exhibitions, personal and other news, technical articles, and many topical features will be included.

TRADE NEWS

The 'Raymond' Gas Cooker

MADE by General Gas Appliances (proprietors: Allied Ironfounders, Ltd.), styled by Raymond Loewy, this cooker, called 'Raymond' in honour of the designer, is a most luxurious and efficient appliance.

Constructed of sheet metal and cast iron, it is finished in gleaming stainless vitreous enamel—even the pan supports and burners. The overall dimensions are: Width, 23 in.; height (including plate rack), 53 in.; height (to hotplate), 36 in.; depth, 22½ in.

The sturdy, chromium plated plate rack slips readily up and out into position from behind the splash plate, and slips back again out of sight when not needed. For greater convenience, the 'Raymond' has a larger hotplate: Width, 23 in.; depth, 18¾ in.—enough to allow the cooker to have a larger grill and oven.

All parts can easily be lifted out and washed clean in the gentlest soap suds; no scratchy cleaners are needed and so the glass smooth surface of the Raymond need never be marred during cleaning. Even the splash plate at the back can easily be removed for a thorough wash.

All taps are safety type. One must press the taps in to turn them on. They are so adjusted that any size of flame is possible; it is as simple to simmer as to boil.

Automatic Ignition

Automatic ignition is provided for all burners, including the oven. The ignition is battery operated. A safety device ensures that the oven burners will light only when the oven door is open. The battery for the lighter can be reached easily when the grill chamber is removed; it is simple to replace with a new battery when needed. A battery lasts for months; it is a standard type.

Completely enclosed when not in use, the grill chamber is handy for keeping food warm. Width of chamber, 17½ in.; height, 5 in.; depth, 16 in. Specially fitted with embossed runners to carry the grill pan, the chamber is finished in white acid resisting enamel and can be removed for cleaning.

The grill, with its carefully planned burner, ensures even heat-distribution and a large grilling area.

The capacious oven is big enough to cook for the largest family. Width, 17½ in.; height, 16½ in.; depth, 15½ in. There are two burners thermostatically controlled in the oven. Temperature is set at the oven tap itself. The grill pan is designed to fit on the oven runners and can be used as a roasting pan.

The oven shelves are self-locking and non-tilting so they can safely be drawn forward still retaining their horizontal position. Oven sides, back, top, and bottom all come out. All the interior lining comes out easily and can be washed in soapy water. All the removable interior is finished in vitreous enamel with stainless high porcelain gloss.

The cooker fits flush against the wall. The oven flue comes out in front of the splash plate, the stainless steel ventilators are at the back of the hotplate. This method of drawing out steam from the oven in front of the splash plate prevents the wall from getting stained and dirty.

All metal parts are either chromium plated brass, polished aluminium, or stainless steel.

The 'Raymond' cooker has been chosen for the Festival of Britain as an outstanding example of contemporary British invention, craftsmanship, and design. *General Gas Appliances Ltd., Audenshaw, Manchester.*

Bardsleys

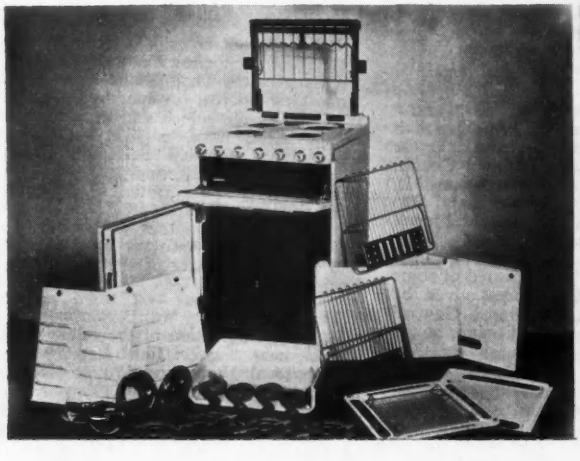
We have been advised that all aluminium ladders have been increased in price by 10%. This includes the lightweight steps: *Bardsleys-Colchester, Ltd., 196, Bergholt Road, Colchester.*

Parkinson Stove

We have received the service manual for the 'Flag' cooker—an excellent production, dealing with all aspects of service. Adequate supplies of this service manual to meet the industry's requirements are available on application. A reprinted 'Renown' service manual is available again as is the 'Crest' service manual, both equally well produced: *The Parkinson Stove Co., Ltd., Stechford, Birmingham 9.*

Evershed & Vignoles

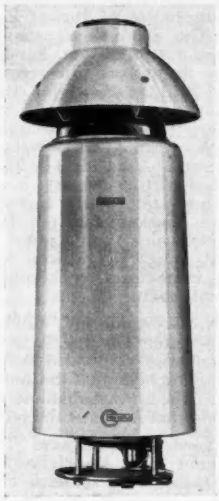
The new general catalogue, No. 242, has been received in this office. It deals with all the products of the company, including recorders, flowmeters and transmission systems. It is both comprehensive and well illustrated.—*Evershed and Vignoles, Ltd., Acton Lane Works, Chiswick, London, W.4.*



Radiation

A new larger model of the 'Circulyn' Series of 'New World' water heaters—the No. C.60—has been announced.

The output of this larger model is 28 gall. per hour raised 80°F. compared with 5½ gall. and 13 gall. respectively for the C.12 and C.28 models. The C.60 is intended to meet the hot water needs of large households and commercial establishments, its output being undiminished by fluctuations of gas or water pressures. When connected to adequate insulated storage tanks of 50 to 60 gall. capacity the rapid recovery



rate of the C.60 provides a reserve to meet peak hot water requirements. The 'Circulyn' C.60 is controlled by a snap action Regulo which maintains the maximum gas rate until the water in storage reaches the predetermined temperature when the supply to the burner is cut off. Like the C.12 and the C.28, the C.60 has a heat exchanger of Radaloy, resistant to heat and corrosion, which ensures long life with the minimum of maintenance attention: *Radiation Group Sales, Ltd., 7, Stratford Place, London, W.1.*

E. Boydell and Co.

The Muir-Hill LH/1 has been specifically designed to meet the needs of many for a compact highly mobile loader to work in confined spaces. It is a small machine and whilst capable of loading in excess of 20 tons per hour it has an entirely different field of application from the Muir-Hill mechanical type loader. It will provide the complete answer to the need for working in warehouses, ships' holds, etc., and will readily negotiate such obstacles as girders, scaffolding, etc. Ramps and gangways can be traversed with safety and all bulk materials such as sand, gravel, coal, coke, cinders, cement and refuse of all kinds are readily handled.

A petrol engine developing 35 b.h.p. is standard, but an equivalent diesel engine may be supplied at option.

Dimensions: Bucket width, 42 in.; maximum dump clearance, 5 ft.; clearance under bucket hinge, 6 ft. 4 in.; bucket capacity, 10¼ cu.ft. (1,200 lb.); lifting time five seconds to 8 ft. 9 in.; lowering time three seconds; length overall, 10 ft. 6 in.; width, 4 ft. 3 in.; wheelbase, 4 ft.; track (steer), 3 ft. 8 in.; track (drive), 3 ft. 2½ in.; height overall, 5 ft. 1 in.; height bucket raised, 8 ft. 9 in.; ground clearance, 6 in.; articulation clears obstacle, 6 in.; turning circle, 15 ft.; weight, 1 ton 15 cwt.

E. Boydell & Co., Ltd., Elsinore Road, Old Trafford, Manchester 16.

Ascot Gas Water Heaters

The Ascot stand (illustrated above) at the Ideal Home Exhibition was designed as a 'selling' display, and for this purpose featured the various heaters in separate bays where they could be operated easily by the visitors or, alternatively, easily demonstrated by the sales staff.

Turley & Williams, Ltd.

A London office has been established by Turley & Williams, Ltd., manufacturers of the 'Master' cookers, to facilitate service efficiency to the south of England gas boards. It is situated at 11, Argyll Street, Oxford Circus, W.1 (telephone Gerrard 2612), and is managed by Mr. Harry Friedman.

B.T.H. Swansea Office

As a result of the Swansea reconstruction plan, the premises occupied by the British Thomson-Houston Co., Ltd., District Office and Mazda Trade Counter, as from April 1, will be 12-13, The Kinsgway (formerly 4-5, Northampton Gardens, Swansea). Telephone: Swansea 2151/2 remains unaltered.

Manchester Juniors' Annual Dinner

INSTITUTION PRESIDENT GUEST OF HONOUR

The annual dinner of the Manchester District Junior Association of Gas Engineers was held on March 17, the guest of honour being Mr. F. M. Birks, C.B.E., Deputy Chairman of the North Thames Gas Board and President of the Institution of Gas Engineers

THE toast of the Chairman and members of the North Western Gas Board was proposed by **Mr. R. J. Bradshaw,** immediate past President of the Association, to which Mr. Councillor **H. Butters,** full time member of the Board, suitably responded.

Mr. L. G. Townsend, Senior Vice-President of the Association, in proposing the toast of the President of the Association, Mr. D. M. Thompson, said that during the early days of nationalisation they had all been wondering what the future of the Association was going to be. He could assure everybody present that Mr. Thompson, when his Presidency was still 18 months ahead, was very preoccupied as to what his programme would have to be during his term of office. It was with very great pleasure that they heard of his preferment to his appointment at Wirral, and now he was to be very much congratulated also upon the admirable programme he had laid down for their edification during the present session.

The **President,** in responding to the toast, remarked that provision merely for technical information and technical knowledge in itself would not be sufficient for the full advancement of the welfare of the gas industry. The industry must also include men who could think of and develop new ideas, and who could consider the prevailing position in a new light. He would suggest to everybody when they had finished their work and had gone home for the day that they should sit down and think over what they had done during the day. It might be that the result of their thoughts would surprise them, as it had himself.

Mr. John H. Grayston, G.M., then proposed the toast of the Institution of Gas Engineers, and the Manchester and District Section. On July 1 last year there came into being a new body, and the Manchester Seniors changed its identity and became a District Section of the Institution, thereby creating a very close and very corporate link with the parent body. The Juniors were very proud of their autonomy, and their object was to train gas engineers. Of the newly constituted District Section, represented by its Chairman, Mr. N. G. Appleyard, he would like to say that the Juniors were encouraged by the step the Seniors had taken, and looked to them for leadership and guidance in the future. As a matter of fact the Juniors were most directly concerned in what was being done and would derive the greatest future benefit from the work of the Institution.

Mr. F. M. Birks, C.B.E., in acknowledging the toast, remarked that that it must never be forgotten that the Institution was not an administrative machine imposed upon the engineering profession. It was a voluntary association, founded by gas engineers themselves. It was intended to embrace the whole profession of qualified gas engineers, and for the promotion of engineering objects as applied to the gas industry in all or any of its branches. The Royal Charter bestowed upon its members certain privileges and also certain duties for the fulfilment of which its Council was responsible. That Council was composed of members of the Institution duly elected by ballot of their fellow members. The professional status of the Institution rested in the hands of the members themselves. In regard to the technical field the Institution, through its technical committees had constantly under review the current technical problems with regard to the development of the industry. Coincident with the reorientation of the industry, in regard to the administration of the Gas Act, there had been developments on the professional side which should prove to be of great advantage. Districts would be brought into closer collaboration with the parent body.

Mr. N. G. Appleyard, Chairman of the Manchester District Section of the Institution, also responded to the toast, expressing the hope that the Junior Association would always continue to be the virile body that it was at the present day.

Other toasts proposed were 'The Yorkshire Junior Gas Association,' by Mr. H. N. Dann, and responded to by Mr. S. Davies, President of the Yorkshire Junior Gas Association; and 'Our Guests' proposed by Mr. A. K. Howell, and responded to by Mr. Chas. Cooper (W. C. Holmes & Co., Ltd.).

Committee on Fuel

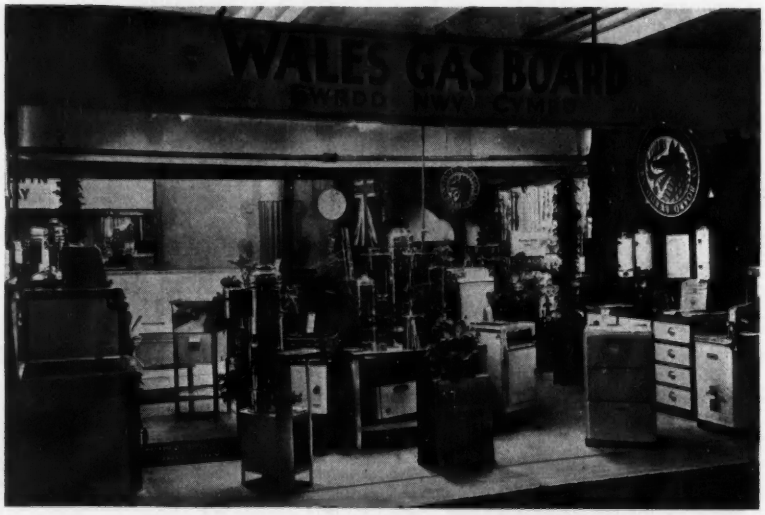
Mr. P. J. Noel-Baker, Minister of Fuel and Power, stated in the House of Commons on March 21 that continued progress was being made on improving the efficient use of fuel, but there was still a great deal to do. He was appointing a committee of experts to help him in an advisory capacity.

All the members had not yet been appointed, but the Chairman was Captain W. Gregson, a past President of the Institution of Mechanical Engineers, and other members were Mr. W. L. Boon, Managing Director of Powell Duffryn Technical Services, Ltd.; Mr. Oliver Lyle, author of 'Efficient Use of Steam,' and a Director of Tate and Lyle, Ltd.; and Dr. R. T. Sargent, Professor of Fuel Technology at Sheffield University.

Announcing an improvement in coal deliveries, the Minister said it had proved possible to deliver to industrial firms, on the average, 95% of their requirements, against the 85% which he had mentioned as a possible maximum when he made a statement early in February.

Distributed coal stocks at the end of April would be higher than last year, and perhaps higher than for several years.

HOMES AND HOTELS EXHIBITION



Above is a view of the Wales Gas Board's display at the 'Brighter Homes and Hotels' Exhibition held recently at Llandudno.

COMPANY MEETING

Radiation Limited

Annual General Meeting: Speech by Harold Hartley, D.Sc. (Chairman)

AT the annual general meeting of Radiation Ltd., held at the Chartered Insurance Institute Hall, 20, Aldermanbury, London, E.C.2 on March 29, the Chairman, Dr. Harold Hartley, said:—

Before dealing with the accounts, I wish to make reference to the resignation from the Secretaryship of Mr. T. N. Jennings who has served Radiation Ltd. for 25 years. We, who have known him as a colleague, have realised how much is due to him, not only for the work he has done in his own section of the business, but for the help which he has given so freely to each of us. As a member of the Finance Committee he has carried a large responsibility for ensuring that the investment policy has been a sound one. It was at my request that he has continued to work full-time for the past two years and I am glad to have this opportunity of acknowledging the help he has given me. Although he wishes now to enjoy a well-earned retirement, he has agreed to act as a part-time member of the Board, in which capacity he will still be able to exert his influence. Mr. Jennings is succeeded as Secretary by Mr. J. I. Thomson, who was formerly Assistant Secretary.

The Directors' Report

The accounts comprise the consolidated profit and loss account and the consolidated balance sheet of the Radiation Group and also the balance sheet of the holding company at December 31, 1950, with the comparative figures for the preceding year.

The consolidated profit and loss account shows that the trading profit of the group for the year is £1,536,225, which is a record. After adding investment and sundry income and providing for depreciation, directors' remuneration, pension payments, etc., the net profit, before taxation, is £1,284,025, an increase of £369,034 or 40% on the figure for the preceding year. The investment income at £52,667 is £10,649 higher than last year.

After reserving £724,375 for taxation, there is left £559,650 as the net profit of the Group. This compares with £431,545 for the preceding year, and is an increase of approximately 30%.

The undistributed profit retained by the subsidiary companies is £335,017, which leaves a balance for Radiation Ltd. of £224,633. Adding to this the amount of £164,114 brought forward from the year 1949, there is available a total of £388,747.

The interim dividend already paid and the final dividends which are recommended for payment will absorb £222,550, leaving a balance of £166,197 to be carried forward in the accounts of Radiation Ltd.

The aggregate balance to the credit of the subsidiary companies' profit and loss accounts, including the year's balance of £335,017, total £821,836. Of this sum it is proposed to transfer £230,142 to the general reserve so as to increase that reserve to a total of £500,000, and also to transfer the sum of £30,000 to the pensions reserve. The balance carried forward to the consolidated balance sheet is £727,891.

From the consolidated balance sheet it will be seen that the book values of the fixed assets of the Group total £2,134,049, an increase of £45,680 over the comparative figure for 1949. If to this latter sum is added the amount of £201,174 allowed for depreciation, the resulting total £246,854 represents the expenditure during 1950 on new buildings and plant.

The current assets of the Group, comprising stock, debtors, investments and cash, total £6,883,507. As the current liabilities and provisions were £1,707,592, it will be seen that the excess of current assets over liabilities and provisions at the close of the year was £5,175,915; the corresponding figure a year earlier was £4,754,842.

Prices, Output, and Costs

Prices. The policy of your Board of obtaining a large turnover with a small margin of profit and of sharing with our customers the gains resulting from improved working has been maintained.

On January 1, 1950, a reduction of 12½% was made in the price of the Low-Price cooker; this was referred to in last year's address. In July, arrangements were made to supply enamelled burners on all cookers, without additional cost to the purchaser, while a price reduction was made to those Area Boards which had previously purchased the apparatus in its dearer form. It is estimated that as at present supplied the selling price of the Low-Price cooker is only 40% greater than the price that would have been charged in 1938.

Output. During the period under review, the financial value of the output of the Group has, despite price reductions, exceeded the previous year's record by about 25%, while the gross profit, after deduction of all prior charges, has exceeded £1,000,000 for the first time in the history of the Company. Despite the increased costs of materials, and the price concessions, the actual profit margin has increased somewhat, owing to the increased output and improvement in the efficiency of the working of the Group.

The experiences of the Area Gas Boards have been such that we believe the Low-Price cookers are the most popular gas cookers manufactured in this country. The demands made upon us last year far exceeded the output, which was limited by the availability of steel. During the year there was every reason to anticipate that larger supplies of steel would be available in 1951 and additional plant was installed to enable the output to be increased materially. Had it not been for the deterioration in the international outlook and the need for re-arming, it would have been possible to forecast confidently for the present year the attainment of an output well in excess of last year's record. Unfortunately, the cuts which the Government have found it necessary to make in the allocation of steel, brass, and other basic materials, are such that it may be impossible to attain the output targets for all appliances drawn up originally for 1951. It has been deemed expedient to make depreciation allowances higher than normal so as to strengthen our financial position and reduce the on-cost charges for future production. These allowances may not earn the full income tax rebate for the current year and they are in part responsible for the higher ratio of income tax to net profit.

The performance of the domestic gas appliance industry has been commented upon favourably in official quarters. Your Company has taken the leading part in the developments which have earned this praise. In the January, 1951, issue of *Target*—the official publication used for reporting increased productivity in this country—special reference is made to the production at our Warrington works. Permission has been obtained to reprint an excerpt from that paper and it will be circulated with this address.

The production difficulties which exist are in some ways as serious as those with which manufacturers were faced in the early days of the last war. The problems have been and are being tackled with the exercise of all possible foresight, but it will be realised that if the raw materials are not available, finished products cannot be made.

Costs. Between July and December the costs of production of the Low-Price cookers rose by some 6%. Had this been passed on to the Area Boards and in turn by them to the domestic user, the latter might have had to pay about £1 more for the cooker. Since re-arming was envisaged, costs of raw materials have shown a tendency to rise more rapidly, but it is our intention to avoid price increases as long as is practicable. A great deal of publicity has been given to the need for fuel economy and your Company is making a not inconsiderable contribution in that the Low-Price cookers in particular are being used to replace obsolete and less efficient cookers, so that each one installed should lead to a saving of fuel.

Profits and their allocation. As will be seen from the consolidated balance sheet, the issued ordinary capital still remains at £2,262,559, while the total

capital as represented by the net assets, including stock at the book values, amounts to £7,609,964. This has increased by more than £2,000,000 since 1938.

The benefits of specialisation have accrued during the whole of this year with the result that the net profit, before taxation, is the record sum of £1,284,025. Your Board has decided to recommend the restoration of the full ordinary dividend and bonus last paid in 1938.

The payment of the interim dividends and final dividends proposed will involve distributing £222,550 to the stockholders, of whom there are approximately 11,000.

The sum reserved for payment of income tax and profits tax amounts to £724,375, which is nearly equal to a dividend of 33% on the ordinary shares. In addition, there has been collected for the State by way of purchase tax surcharges the sum of £311,712. The combined total of these levies on our activities is £1,036,087.

The total number of employees at the end of last year was 9,360.

The sum of £337,100 retained by the subsidiary companies and the parent company should be compared with the year's capital expenditure of £246,854.

During the period under review, the average earnings of the employees of the Group have increased and they are, of course, much higher than they were in 1938. The Area Gas Boards have shared in our prosperity by the price reductions made. The State as a whole has benefited financially to a greater extent than ever before, while the stockholders will receive a return numerically equal to that paid last in 1938, but now paid in depreciated £s. I hope you will feel that we are exercising the restraint for which the Chancellor of the Exchequer has asked.

Capital Expenditure

As mentioned already, the capital expenditure incurred during the year on new buildings and new plant amounts to £246,854. Monies expended on new equipment yield a return considerably greater than that which can be obtained when the cash is kept in reserve and invested in gilt-edged securities, and it is proposed, as conditions allow, to invest more of our savings in production plant for use on behalf of the gas industry and the other industries with which we work.

A committee of the Board is responsible for ensuring that the plant and production methods are kept up to date. In considering their recommendations for additional capital expenditure, firstly the Finance Committee and subsequently the Board as a whole review the proposals. We have planned in broad outline the direction in which further development is to take place, to avoid, in so far as is practicable, over expansion in any direction and especially mere *ad hoc* expenditure. Regard is paid both to the return which can be obtained from the money invested and to the potential market to be satisfied—bearing in mind especially the influence which the expenditure will have on output and production costs. In this way it can be ensured that each development fits in to the plan to which we are working.

The increase in output has been shared by all main sections of the business and it appears, in view of the quality and reputation of our goods, there should be, under normal conditions, opportunities for further expansion, especially in our spheres of interest outside the gas industry, which, however, embraces our principal activities.

Solid-Fuel Appliances

Last year reference was made to the formation of Radiation Group Sales Ltd., and to the unification of the selling arrangements for domestic gas appliances. Steps have now been taken to reorganise our methods of dealing with the sales of solid-fuel appliances. The way in which this has been done is basically the same as that used for dealing with the gas-supply industry, although, as the trade is dealt with differently by the solid fuel industry, there is not complete identity of the two schemes.

There has been intensification of the work done in the Research and Development Section and steps are being taken to overhaul the production methods and to co-ordinate the activities of the three production centres concerned. In the past a large variety of domestic appliances was made for use with solid fuel —variants of the same type were sold independently by our three organisations. The list of manufactures has been overhauled and reduced ruthlessly with the object of concentrating production on a limited number of lines for which there is a large demand. In other words, the methods of specialisation are being applied to that sphere of our activities and the selling is now being done by a Radiation staff.

Exports

The value of the exports for the year shows an increase of 10% on those of 1949. Like our own country, other countries have their economic difficulties and we are still far from the conditions ruling when free interchange of goods took place. Nevertheless, the Group as a whole is making progress and it is hoped, despite the uncertainty of the international outlook, that we shall be able to report further expansion of our overseas activities in the future, especially in our trading with the Dominions.

In New Zealand the subsidiary company continues to make progress and it is our intention to arrange that the working of that organisation shall be more closely co-ordinated with our home production centres. Similarly, in other spheres of activities abroad, it is intended to effect still closer alliance with our domestic activities. In the past, export sales have been treated as the concern of the individual subsidiary companies. They are dealt with now by a separate division of Group Sales.

The reports we have received from our associates abroad are most hopeful and give confidence for the future, provided always, of course, that international conditions do not wreck our plans completely.

General Organisation

The alterations which are being made in the working of the production centres and in the activities of our sales organisation are a part of a continual overhauling of our organisational methods—general administration, development, production and sales—which is necessary as a consequence of the changing economic conditions. Substantial co-ordination of effort is being effected throughout the Group so that its operation may be made more effective and more economic than in the past. Steps are being taken to ensure that the best experience in methods of management is applied wherever critical examination suggests that a change is desirable.

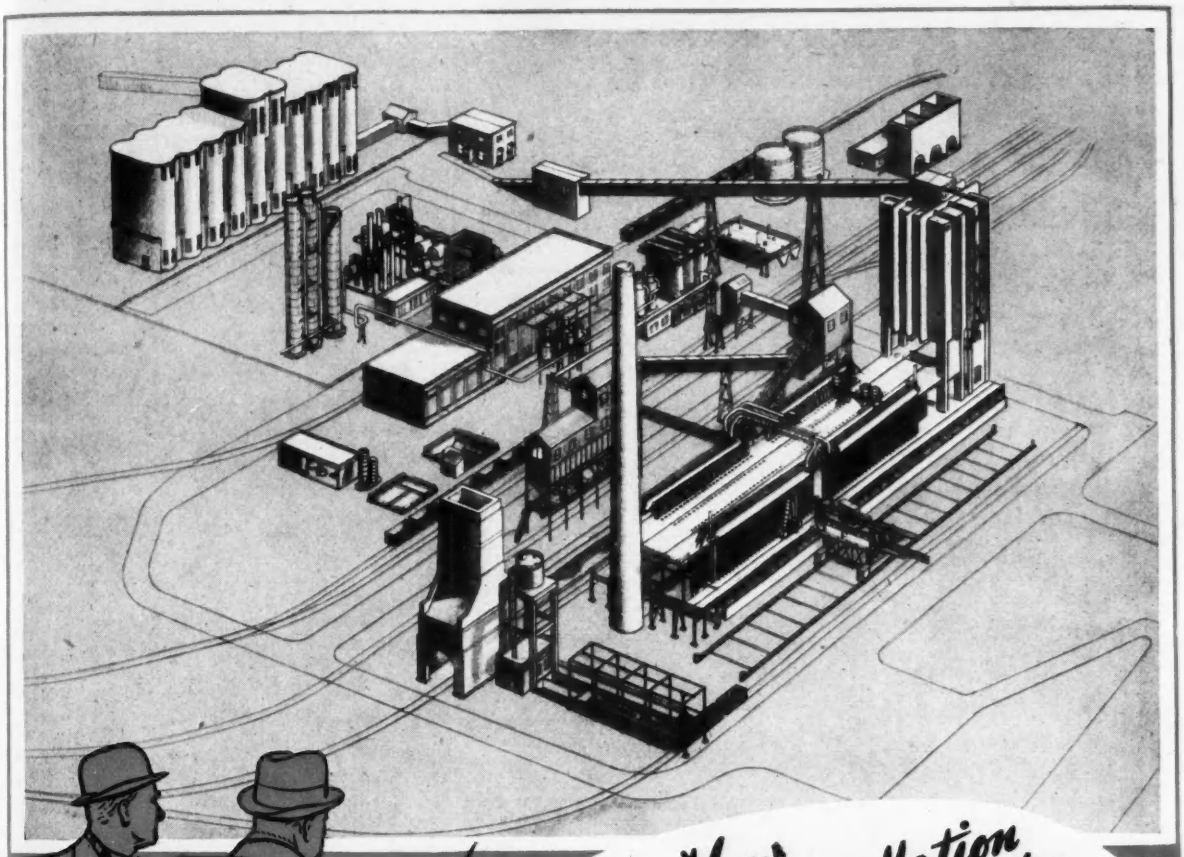
I wish to take this opportunity of expressing to all my colleagues concerned appreciation of the co-operative manner in which they have worked to ensure that the Group as a whole shall benefit. The results summarised in the financial statements show in tangible form something of the effect of the work that has been done.

The social revolution which has gathered impetus since the first world war has led to a notable change in the industrial outlook. At the same time the impact of governmental control by regulation is influencing the functioning of production units to an increasing extent and lessening the beneficial effects of competition. It concerns all of us to make our best endeavours to ensure that the changes shall be so guided that they do not lead to such a sacrifice of individuality as will ultimately cause stagnation, or, on the other hand, produce an explosion.

In last year's address reference was made to our recognition of the need for providing full opportunity for executives to get on with their jobs and of the importance of developing a team spirit and of encouraging and rewarding individuality. The practice is being continued of arranging for members of the staff to attend refresher courses dealing with their particular spheres of activity. Means are being implemented of ensuring that promising members of the staff shall have special opportunities for improving their knowledge and experience, so that in the future they may be fitted to occupy the highest posts in the organisation.

The manner in which reorganisation is being effected is an indication of the flexibility of the Group and it is the wish of the members of the Board—and I am sure it will be yours as representing the stockholders—that we acknowledge again our appreciation of the generous support we have received from all our fellow employees: without this, but little could be accomplished.

The report and accounts were adopted, and dividends were declared as follows: A dividend at the rate of 6% per annum, less income tax, for the half-year to December 31, 1950, on the 6% cumulative preference stock; a final of 7½% per annum, less income tax, on the ordinary stock, which with the interim dividend of 5% makes a total dividend of 12½% for the year; and a bonus of 2½% less income tax, on the ordinary stock.



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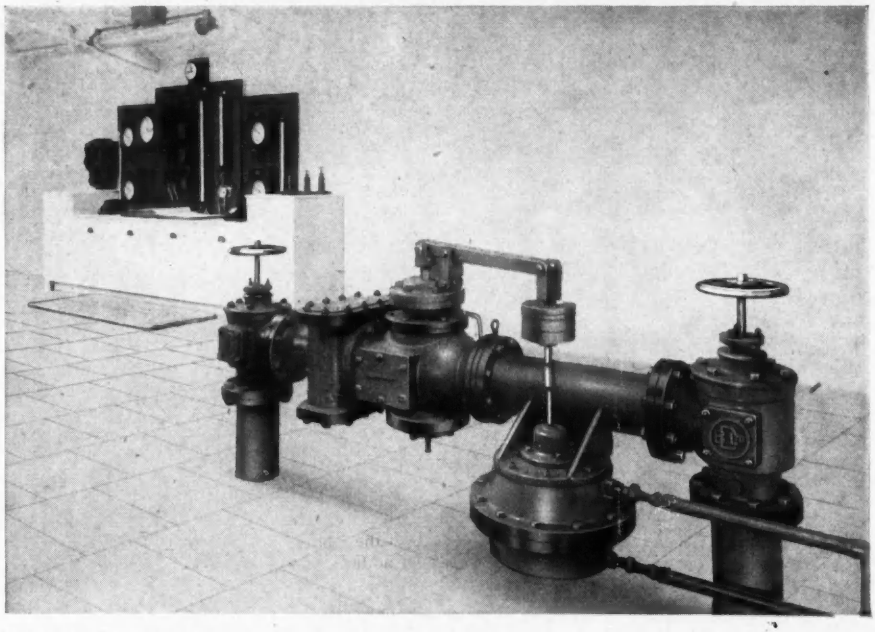

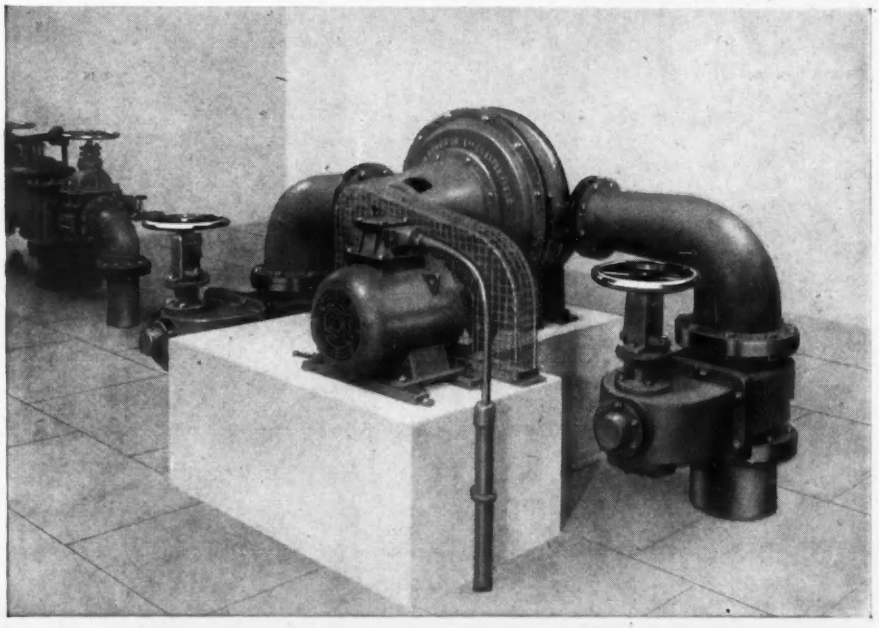

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The Functions of

A RESEARCH DEPARTMENT

in a Small Firm

by

W. E. BENTON, M.Sc.
Chief Technical Officer,
Sidney Flavel & Co., Ltd., Leamington Spa.

Extract from a Paper to the
Institute of Industrial Administration

SCIENTIFIC research has been defined as 'the investigation of the relation between cause and effect in natural phenomena,' and indeed in its strict sense the name should only be given to enquiries which have as their object the extension of scientific knowledge, without regard to its practical application. This is the sense in which scientific research is pursued in universities, and in some research institutes, and in the research laboratories of very large industrial organisations. But the word 'research' itself denotes no more than 'diligent enquiry,' and it is permissible to describe as research any diligent enquiry in a scientific manner which has as its object the improvement of an industrial product, or the development of a new one, or the improvement of the processes used in its production.

In a large organisation research is not confined to the immediate products of the company, and may extend over the whole field of work in which the firm is interested. In addition to this, 'pure' research work may be carried out on problems for which there is no immediate application. It may surprise many to learn that in the largest organisations no suggestion is made by the management as to the lines on which research should be carried out. Experience has shown that from a well-directed laboratory there will in time emerge a stream of new products, processes, and proposals for development, more than sufficient to engage the whole of the company's resources. It takes quite a number of years for a laboratory to reach such a fruitful stage, and it will only reach it if its operations are on a sufficiently large scale. Technical progress derives ultimately from the right use of the raw material of scientific knowledge. A large firm with many interests requires to be fed constantly with new knowledge, and often the information required has not yet been discovered or published. Working on such a scale it is easier for the firm to make its own investigations than to rely on the discoveries of the research institutes and the universities.

The research department of a small firm should not attempt to be a miniature replica of the laboratories of its large competitor. In a small firm research differs not merely in scale, but fundamentally, from research in a large firm. Whereas in large organisations the object of research is to maintain and develop the firm's competitive position, in small firms it is quite simply—to survive. Now small firms can usually survive merely by doing as well as some of their competitors. They are not often extinguished by the exploitation of a profoundly new discovery on the part of their largest competitor, but they can be very easily extinguished by inefficient operation, poor design, or bad workmanship. The first priority is, therefore, the maintenance of efficient production. The discovery of new knowledge is of very little importance compared with the intelligent application of existing knowledge, and the constant and close attention to the present products of the company and to the development of new products in the same field.

In the present paper a 'small firm' has been taken to mean one employing total resources of between roughly £30,000 and £300,000. The writer's experience has been mainly in the manufacture of gas and solid fuel appliances, and in their allied industries. The variety of modern industry is too great for there to be more than a general resemblance between the research problems of one industry and another, and it cannot be hoped that the conclusions in this paper are applicable to industries widely different from the one which is still known under the general name of the 'stove-grate' trade. One is conscious, too, that scientists are reputed to be unreliable when they venture on predictions outside their own subjects.

The person in charge of the research department of a small firm is often described as the 'chief chemist,' whether his training has been that of a chemist, a metallurgist, a physical chemist, or even a physicist. In works where engineering or design problems predominate over chemical or physical ones he may be known as the research engineer, the technical manager, or the chief technical officer.

Research in industry is a very different thing from research in a university. There is little or no opportunity of pursuing knowledge for knowledge's sake. Nominally the chief work of the laboratory is to develop new products, but in actual fact the control of production processes takes precedence over all other work. The danger is that it may take up too much of the laboratory time. Production problems multiply, particularly when the firm is busy, and the end of a boom period may find the development of new products very far behind the original programme.

De-centralisation of Control

The load imposed on the laboratory by the necessities of controlling production processes can be lightened by taking out of it a number of the routine tests of processes and materials and putting them into the hands of the departmental managers and foremen. This is already common practice in many industries. A mechanised foundry requires frequent and immediate tests of its moulding sand (moisture content, permeability, green strength, etc.), and these are usually made in a cabin on the foundry floor, immediately under the eye of the foundry manager. A modern vitreous enamelling plant, for example, usually has its own control room where all the tests required by the plant (pickling strengths, milling fineness, specific gravity and viscosity of slip, dipping and spraying tests, firing, colour matching, etc.) are carried out by a technical assistant working under the enamel shop manager. The chief chemist operates a sort of 'watching brief' over these tests and provides and checks the reagents used, and maintains the apparatus.

When a new works process is introduced it is natural that the routine tests required by it should be made at first in the research department since they are conveniently made with conventional laboratory apparatus, and a certain amount of experiment is often necessary to find the best conditions of operation. As soon as these are attained it should be considered whether the tests should not be transferred to the departmental manager. With a little thought the test apparatus can usually be simplified and made more robust. A chemist will estimate the strength of an acid sample with a pipette, a burette, and a number of glass flasks, all delicate pieces of

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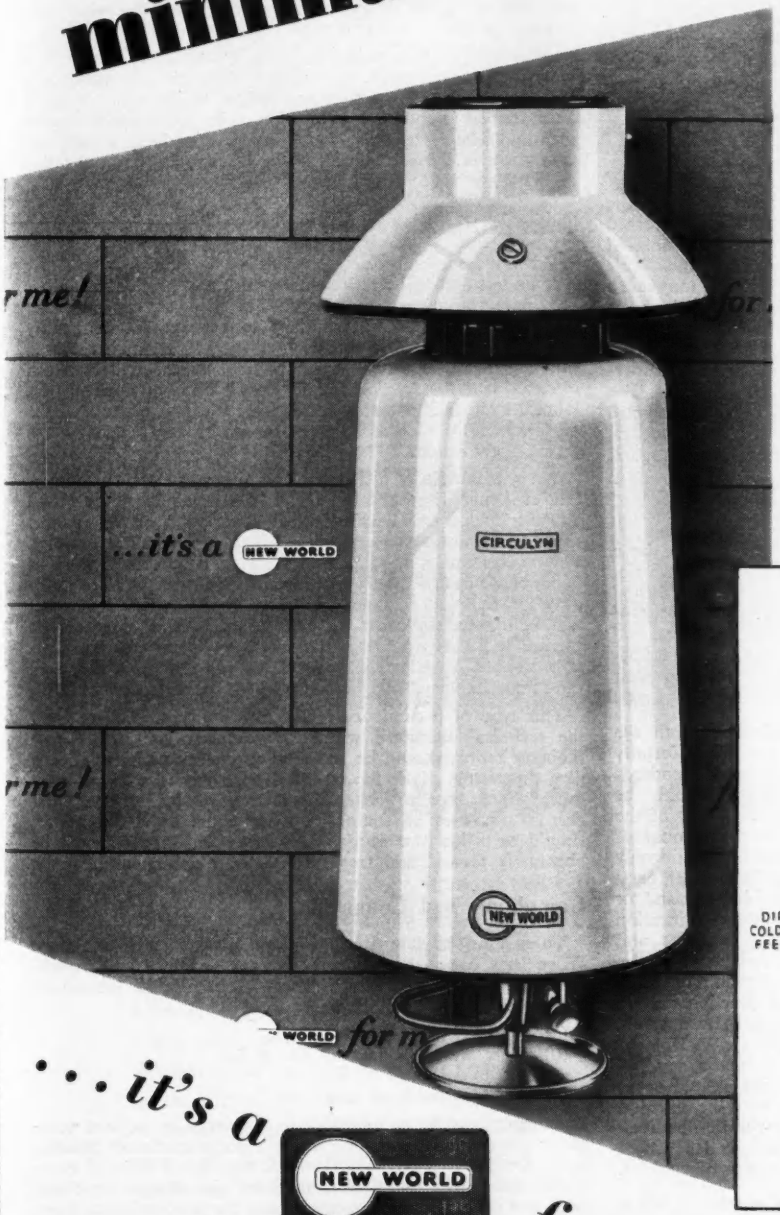
minimum maintenance



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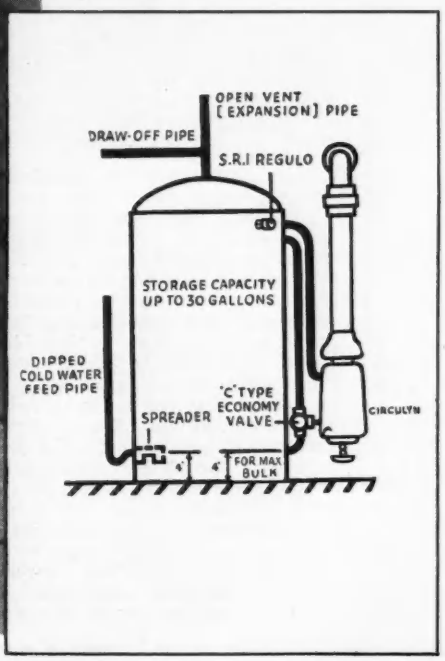

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apparatus. The same test can be made in the works within the required limits of accuracy with a single measuring cylinder and two or three glazed stoneware or stainless steel vessels. Arithmetic can be eliminated by suitably choosing the strength of the standard alkali and by special graduation of the measuring cylinder.

There is a further reason for eliminating routine tests as far as possible from the research department. Not only do they take up valuable time, but they have a harmful effect on the operators, who are not in contact with the production processes and tend to think that a pass-result on the test indicates that all is well with the process. When trouble occurs it is frequently through some factor not covered by the routine tests. In the works the tests are taken at their proper value as providing a measure of some, but not all, of the various factors in the process. To the departmental manager, or to any competent workman, the test is a supplement to his experience, whereas in the laboratory it may be substituted for experience.

It is often maintained that the tests under the control of the departmental managers should be limited to those concerned with the various stages of the process, and that tests of finished goods should be under the control of the chief inspector. This is reasonable but it can be carried too far, and may even result in some duplication of work. Workmen may improve their methods to satisfy their own manager, but they inevitably tend to dodge the inspector. But whoever carries out the tests, the laboratory is concerned with their formulation and supervision, and usually with the maintenance of the apparatus. The only routine tests that should be retained in the laboratory are those which require either particularly expensive apparatus, or a technique which is outside the capabilities of works personnel.

Bought-out Parts and Materials

The testing of bought-out parts and materials would be a very considerable burden upon the laboratory if it were not for the general adoption in recent years of trade standards and codes of practice, particularly the invaluable specifications of the British Standards Institution. It can generally be assumed that firms which tender for goods or materials to a British Standard or trade specification have already organised their works to produce to that standard.

It is still necessary to test to the specification, both the original sample and samples from delivery, but the uniformity of the product is usually far higher than before the standards were introduced. The chief chemist will probably only be concerned with technical tests, supplementing the work of the chief inspector. He will soon find that both the amount of testing and his anxiety over uniformity can be enormously reduced by tightening up the specification. Mild steel parts may have previously been ordered in 'best black finish,' or 'chromium plated,' or even simply 'plated.' The specification of a recognised test may eliminate some of the suppliers, and quite possibly the lowest prices, so that a balance must be struck between quality and cost. The specification of every part should be considered in relation to its function and to the cost of the whole. The whole product should be designed to have a certain length of life, and ideally, like O. W. Holmes' 'one-hoss shay which ran for a hundred years and a day,' all the parts should die together. The specification should never call for a higher quality or closer tolerances than the function or expected life of the part merits. Close co-operation between the design office, the chief buyer, and the research department is essential if both high costs and low quality are to be avoided.

There is a further use that can be made of suppliers. When Mr. Brown (chief chemist of a small industrial firm) is testing a finish or a material for a new purpose he may be conscious that his own training, combined with the information available in text-books and technical journals, only indicates the more obvious difficulties and dangers. The one person who knows most about the weak points of a manufacturer's products is his own competitor, and Mr. Brown will be well advised to obtain information from more than one supplier and then to form his own conclusions.

The same applies to whole industries. To anticipate the behaviour of a particular metal, he should look for help not only from its own development association, but from the comparative tests published by other research bodies advocating other metals. Very large firms can afford to make exhaustive tests, including life tests under service conditions, of every material they purchase. Mr. Brown must usually be content to apply the standard tests (where they exist) and to endeavour to simulate life-tests on an accelerated scale. One of his major problems will be to formulate endurance tests which will provide in the space of hours or days evidence of what may happen in several years of normal use.

Normal operation must also include normal accidents. Frequently products which have passed elaborate laboratory tests fail in use because of some condition, which could scarcely be described as misuse, not anticipated by the research department. The chief chemist will learn by experience to advance cautiously in the use of new materials, and in the application of old materials to new uses.

Tests of Samples

When a sample of a new product is submitted to a customer it is understood to be representative of bulk production. It is only natural, however, that the customer will examine it rather carefully, and he will be unlikely to believe that its quality will be exceeded in subsequent deliveries. For this reason samples require a careful examination before despatch, which in the case of technical appliances is usually done in the laboratory. This not only enables a record to be kept of the performance of each sample; it also serves as a check on the current production.

When a sample of a new product is submitted to an important customer who has laboratories of his own, it will be found advantageous to send with it a full description of the product and an account of tests made on similar production samples. Few things annoy a purchaser more than to feel that he is being made use of by his supplier, that his own tests are probably the first to be made, and that his results (if favourable) will be quoted to other prospective purchasers. He will be pleased if he discovers that the supplier has gone to considerable trouble in testing the product, he will feel 'that they talk the same language,' and he will be predisposed to do business.

This type of preliminary report must be quite distinct from the technical literature which is produced later. The preliminary report should be regarded as confidential and should give the results of all the standard tests carried out, not only those which give strikingly satisfactory results. If the chief chemist's powers of composition are equal to it, the report should be in his own words. It is important that it should be absolutely factual and free from any advertisement.

Complaints and Comments

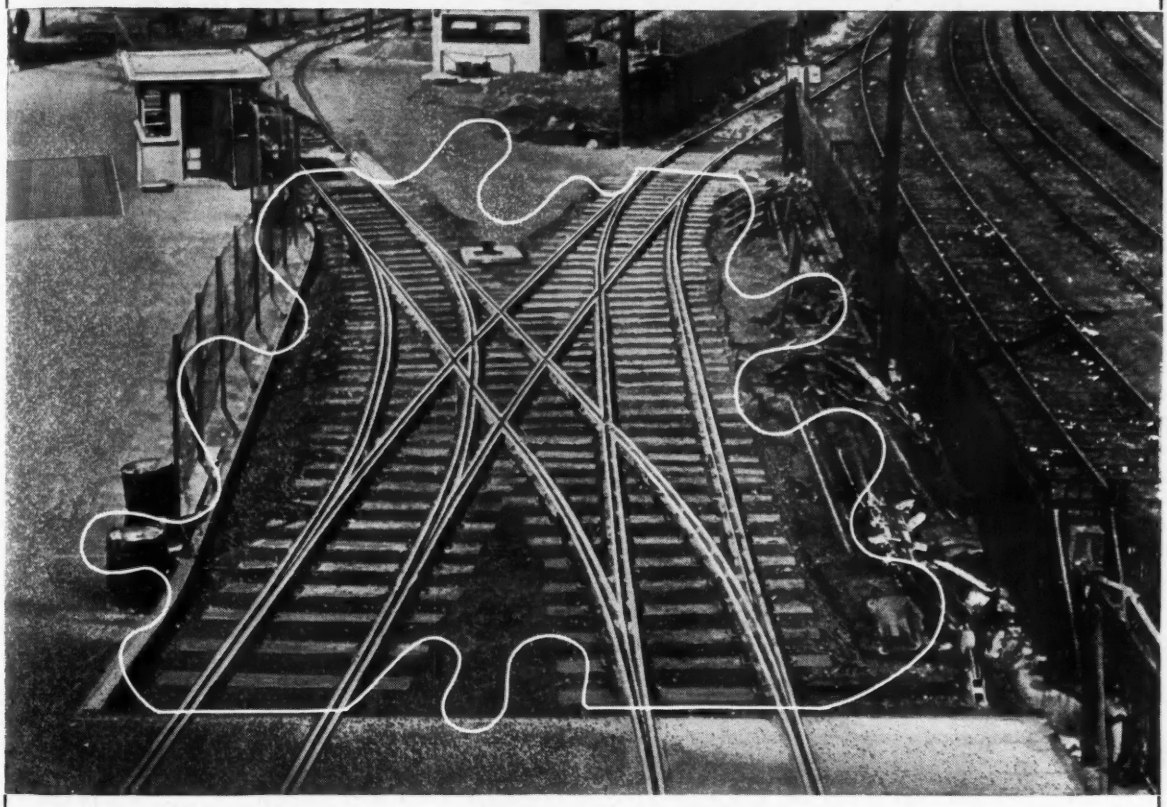
There must be few firms who can boast of no complaints. When they occur they must be treated seriously and expeditiously. On complaints of a technical nature the laboratory will be expected to determine:

(a) The cause of the complaint;
(b) where the responsibility for it lies;
(c) how to deal with it; and
(d) how to prevent its recurrence.

With experience he may be able to discern in an isolated complaint a warning of something which if not immediately checked may spread like a conflagration. A very small ratio of complaints to output, usually less than 1%, is sufficient to check sales and seriously injure goodwill, and the proportionate effect on a small firm is probably more damaging than on its larger competitor. Fortunately goodwill moves with a time lag, and if a complaint is dealt with energetically the result may not injure goodwill appreciably, and in rare instances may actually increase it. When, as the result of a complaint, new parts are sent to replace defective ones they must be very carefully checked. In small firms this is often made the responsibility of the research department which keeps a record of the tests made.

Experience inspires this work

OVID



OPERATION "JIGSAW"

Time, and optimum accuracy, were the taskmasters in the designing and laying of this complicated railway layout at the Thames Board Mills. *Four turnouts and a crossing, forming one integral unit had to be constructed in twelve days, and laid in one week, including removal of the old worn track, and preparation of the site.* The whole had to be accurate to the *n*th degree to allow it to be dropped into four existing tracks, namely one B.R. track, two tracks in a tarmac roadway and the rails on a weighbridge. Obviously none of these tracks could be slewed to allow for the slightest inaccuracy in the Summerson unit.

The layout was constructed in Summerson's 25-acre workshop, to permit minimum parts for speedy laying, the size of each section being only governed by transport facilities. Truly a successful 'jigsaw' operation, inspired by an experience of 100 years of railway siding engineering.

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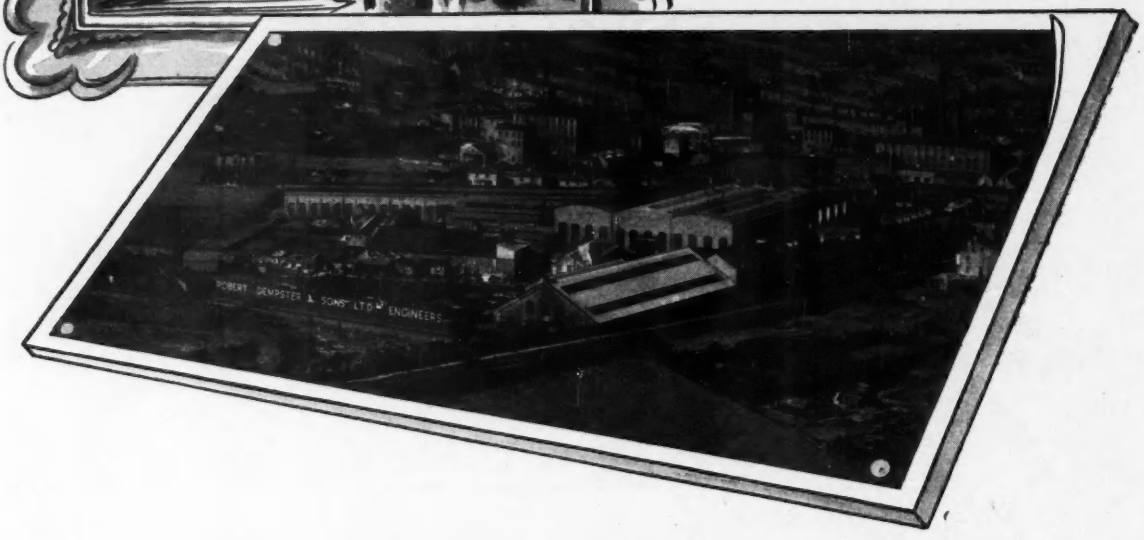

Eland has a history which extends to before the Norman Conquest, and it is interesting to note that in A.D. 1317 Edward II granted a Charter to Sir John de Elland, which gave him the right to hold "A Market and two Fairs" in the town. Eland Hall, illustrated above, with its unusual rose window, is a good example of early Seventeenth Century West Riding Architecture.

Whilst Rose Mount Iron Works cannot claim an origin as remote as the town in which it now occupies the leading industrial place, it can modestly point to a steady growth extending for nearly a century. From 1855, when Rose Mount Iron Works came into being, Dempsters of Elland have steadily built a tradition for sound construction and technical excellence in Gas Works Plant, with an extensive range, comprising :—

Gasholders (Spiral and Waterless M.A.N. types); Purifiers (Cast-iron, welded steel or Tower type); Condensing Plant and Static Washers, Horizontal and Continuous Vertical Carbonising Plants, and Mechanical Handling Plant for Coal, Coke and Oxide.

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The sales department should supply the chief chemist with a weekly summary of all complaints, and these should be plotted graphically so that the effects of the remedial action taken can be observed. A particular complaint may arise from more than one cause, and it must be decided whether the modifications shall cover every possibility or whether it is sufficient to cure the main source of the trouble.

Sometimes Mr. Brown will be able to prove that the complaint is not due to any fault in the product, but has arisen through misuse of negligence. But the matter does not end there. If it is easy to use a thing wrongly, there is a case for modifying the design. In the long run it is the customer who decides what is misuse, not the manufacturer.

Comments or suggestions for improvement may be more welcome than complaints, but they may be just as difficult to deal with, particularly when put forward by an important customer. The chief chemist's part will be to examine the technical merit of the suggestion and to report on it to his immediate superior, usually the managing director. Where, as so often happens, the suggestion is to modify a product developed by the chief chemist himself, he will find the writing of his report a considerable trial on his impartiality—but he must be impartial.

Modifications may be necessary to existing products either to correct faults in the original design, or in order to include a market which had not previously been considered, or occasionally to meet changing market conditions. Large firms can sometimes afford to refuse to modify their current product, on the grounds that there is no technical fault, and the desired improvements have already been incorporated in a new model, to be introduced in (say) 12 months' time. Small firms cannot be so high-handed. Part of the goodwill of their customers derives from their readiness to meet particular requirements. Nowadays when every manufacturer aims to concentrate his resources on as few lines of production as possible, these individual requirements are particularly unwelcome. The cost of press-tools, dies, and permanent moulds is enormous, and when once 'tooled-up' his natural ambition is to make as many as possible before any variation is permitted. Fortunately a product can often be designed so that a few alternative parts or finishes can provide an acceptable variety of choice to the customer. The chief chemist will not be concerned directly in this, but he will be required to say whether each alternative is satisfactory for its purpose.

New Products

A manufacturer who is prepared to make almost any commodity that will show a profit is not likely to be impressed with the need for a research department, or at any rate for more than a scientific system of process control. It is surprising how many regard research as little more than a sort of insurance against accident. The value of a real research department is appreciated best by the manufacturer who has made a study of a particular market and endeavours to supply it with a comprehensive range of products. To many firms this course of action offers the best prospects of steady profits and continuous employment. The development programme of such a firm always contains items which represent either additions to the range of an existing product, or new models to replace those which have become out-dated. Progress on these items is usually much faster than on an entirely new project, since a good deal of the groundwork has already been done, and the design office, pattern shop, and tool room are aware of the difficulties experienced with earlier models. In fact, the decision to make a new model is often received with pleasure, sometimes perhaps with relief and the feeling that 'this time we'll start right.' The brightness is somewhat dimmed by the almost invariable requirement that as many of the new parts as possible shall be strictly interchangeable with the old ones.

The chief chemist's concern in this is to make sure that the new model comes up to its expected performance and that the new features do not carry with them the seeds of future trouble. He will proceed at first on the basis of the recognised B.S. or trade tests, and will add to these any others which may give information about the performance of the product under its expected conditions of use. It is the thorough understanding of the conditions of use which forms the basis of all technical design. Mr. Brown's responsibility at this stage is not only to assess correctly the model's capabilities, but to make sure that his directors realise clearly the implications of the decisions which have to be made. Not all the issues are clear-cut, many admit only of a compromise. Some advantages may only be obtainable by the sacrifice of others. For example, the design of a gas hotplate represents a compromise between the claims of thermal efficiency, speed, combustion, pan stability, and ease of cleaning. In this case good combustion is made a *sine qua non*, and having allowed for this the claims of thermal efficiency and pan stability are almost directly opposed, and efficiency is often opposed to speed, and none of them has any direct bearing on ease of cleaning. The emphasis of public opinion is not constant. Some years ago pan stability, speed, and ease of cleaning were more important than high thermal efficiency. Gas is now more expensive and housewives are beginning to be aware of the cost of cooking. Some sacrifice of pan stability, but not ease of cleaning, seems necessary in order to reduce the gas bills.

A thermal efficiency of about 60% is possible if pan stability is reduced to a minimum and there is some sacrifice of speed, whereas only 40% can be obtained with quick boiling and very good pan stability.

Maintenance of Goodwill

The chief value, particularly to a small firm, of modifying or extending the range of its existing products is that the change can be made relatively quickly, with moderate plant costs and with the least disturbance of goodwill. Those customers who have asked for the change are pleased that their suggestions have been adopted, and those who were satisfied with the old model can usually be persuaded to try the new one, particularly if some of the parts are interchangeable. To the manufacturer, and to Mr. Brown, the new model represents an accumulation of experience. The chance of unforeseen trouble is correspondingly reduced. An entirely new product has none of these advantages. It must rely on the general goodwill of the firm, not on the previous products; its initial plant costs may be very large, and there is the chance that Mr. Brown may have ignored or under-estimated certain possibilities of trouble.

It often happens, however, that an existing product has an inherent limitation which cannot be overcome except by a radical change in materials or design. This should be the only reason that should influence a small firm to develop an entirely new idea. Large firms may be able to afford to try out a new thing in a limited way. A small firm should develop a new idea not for the sake of its novelty, but because it represents a way of escape from limitations which restrict the usefulness and, therefore, the sales of an existing product.

The directors usually look to the research department for these new ideas, although inventiveness and imagination are not by-products of scientific training. Mr. Brown will probably produce some ideas of value if he can keep his mind fresh and detached, which is not an easy matter. An occasional visit to a customer will serve the double purpose of taking him out of the works and of giving him the opportunity of hearing the other side of the problem at first hand. He should also be free to discuss technical problems with any research organisations which may be able to help him.

Whether the new idea was his, or came from any other employee of the firm, or even from outside, it is for the chief chemist to assess its possibilities in relation to the firm's products. The best ideas are those which correctly interpret the trend of market opinion and are just a little ahead of it. To be too far ahead of it, for a small firm, is to be as badly off as to be behind it. To persuade the public to buy something for which it is not prepared, or to teach the distributors and the public a new technique, is not a profitable enterprise for a small firm. On the other hand, the suggestions from the firm's

representatives too often represent the opinion of the market at the moment, which may have changed by the time they can be put into production. The position of a new design in relation to the market should be rather like that of a surf-rider on a wave, just ahead of the crest.

'Total Research'

It is often claimed as one of the blessings of free enterprise that in so many commodities the consumer still has considerable choice of purchase. The principal reason for the variety of choice is that no one maker has succeeded in producing an article which in every way—appearance, construction, finish, performance, and price—is ahead of all its competitors. A product with a good performance may be handicapped by poor design, one of good appearance may be badly constructed, and the really good quality article is often unreasonably expensive. To produce a 'winner,' which will immediately attract both the distributor and the consumer—and will also live up to its first promise—calls for a new type of research activity, for which the Americans have found a name—'total research.' In the development of such a product everything is subordinated to discovering exactly what the distributor and consumer want, and the direction in which the opinions may be moving. Statistics of sales, questionnaires, panels of 'approved consumers,' and all the apparatus of market research are used to build up a comprehensive picture from which the new product can be designed.

This is a very different thing from the popular conception of research. The idea lingers among manufacturers that their research department should produce something amazingly new, which they will be able to protect with a ring-fence of patents and registrations, and for which they will then proceed to find a market. Such a procedure is quite possible and may even be normal in a large organisation, but it takes time and the use of very large resources. A small firm must make things to meet specific needs. Some years ago the sales argument for a certain machine tool was to the effect that the purchaser would be astonished by what uses he would find for it, once he had bought it. There was no indication that those uses had been particularly studied and the machines designed for them. New ideas are certainly needed, but in a small firm they should be born after market research, not before it.

The material collected by market research has to be analysed, screened and then synthesised. The enquiry may be co-ordinated by the managing director or general manager, but in a small firm much of this preparatory work is most conveniently done by the research department. A scientific training should make one capable of analysing any collection of information in a systematic and unbiassed way. It will depend very much on Mr. Brown himself whether he confines himself to his laboratory, or is willing to extend his interests to what may seem at first almost commercial matters.

Wasted Work

In the laboratory specific problems are worked out by scientific methods, but the results are only useful if the original diagnosis of the problem was correct. It is to be feared that a great deal of laboratory work has been and is being wasted either because the problems are not defined correctly to the research department in the first place, or because the chief chemist fails to appreciate the relative importance of the various factors involved. It is unhappily true that many scientific workers feel that their responsibility is ended with the presentation of a report. In their training, both in physics and chemistry, and even in engineering, phenomena are usually considered only under ideal conditions, or with the circumstances very much simplified. An extreme example is in hydrodynamics, which was originally made the basis of a very beautiful mathematical treatment, none of which proved of any use in the design of aircraft. Every scientific argument is built on certain initial assumptions, and the conclusions cannot have more truth than was inherent in those assumptions. In industrial problems the circumstances are often very complex, and if the relative importance of the factors is not correctly apprehended quite misleading conclusions may be drawn. In foundry problems there is a tendency for chemists and metallurgists to prescribe chemical 'cures,' but there is a considerable risk that these ladle-additions and mould-facings may be used in place of, instead of to supplement, good foundry practice. There is no place for a scientist's ivory tower in a small firm. The 'ivory tower' is a state of mind developed by his academic training. In industry he must identify himself with the purpose of the firm, and he must be prepared to broaden his field of enquiry, even to the methods of 'total research.'

Organisation

The head of the research department is usually directly responsible to the general manager or the managing director. The programme of development work is usually co-ordinated by the general manager, who brings together once a week the chief chemist, chief designer, works manager, and the heads of various production departments, and sometimes the sales manager. Mr. Brown will work in very close co-operation with the design office, pattern shop, and proto-type shop, but normally he has no executive authority outside his laboratory. In some cases the design office is brought under his control, and one instance is known where the chief technical officer controls the design office, pattern shop, and proto-type shop, as well as the laboratories. It is a common complaint among scientists, both in academic and industrial work, that their administrative responsibilities tend to increase, for which they often have little aptitude, and on which they feel much valuable time is wasted. A scientist may make a very good chairman of committee, and yet be a poor administrator. It is probably a good plan in a small firm to encourage the head of the research department to co-ordinate and progress every aspect of the development work, without actually extending his executive authority over other departments.

Among Mr. Brown's qualifications, a university honours degree, or its equivalent, is, of course, essential, for there is no other guarantee that his academic training has covered a wide enough field for him to be able to tackle the variety of problems he will meet in industry. But he will require a good deal more than a university degree if his research department is to be of real value to the firm. He may be fortunate in having already spent some time in a works before or during his university course, but it is still more important that he should have had some training in the use of tools. It is desirable that he should be fond of working with his hands, and he should certainly have some appreciation of the qualities of materials and finishes. In England, with its long tradition of skilled crafts, the combination of practical skill with scientific training is not unusual. Some artistic ability, or at least an appreciation of good design, will not be out of place, but this is rare in a scientist.

His laboratory staff will probably consist of at least one fairly well qualified assistant and one or two juniors. The best recruits for laboratory work are boys who have passed matriculation and who are prepared to work for an external degree. Although many laboratories make use of assistants of lower ability, it is usually a mistake to engage a boy who has not the intelligence to reach in time the level of the intermediate B.Sc. examination.

Training

Some part of the chief chemist's time will be taken up in the training of his staff. He will find it advantageous to have every test and laboratory method written out in full in a reference book, and the results of all standard tests should be recorded on duplicated or printed forms. Loose paper should not be allowed in the laboratory. All notes, including the rough working, should be entered on the same sheet. It can often be arranged that the squared paper for a graph forms part of the standard form. The chief chemist will notice the amount of time which his assistants spend upon these standard tests and he will try to modify the apparatus and methods with the object of saving time. The free exchange of ideas about laboratory methods of test between firms in the same industry is very much to be desired.

Only very approximate rules can be given for the size of the laboratory staff, or the expenditure on research, in relation to the size of the firm. Strictly speaking, work on routine tests should be regarded as a charge on production, not on research. The costs of patterns and proto-type work commissioned by the research department frequently outweigh the costs of the laboratory. In general those products in which materials and labour represent a lower proportion of the selling price justify a higher expenditure on research. An outlay in research of about 1% of turnover seems to be a fairly usual figure, and it is probable that few industries can afford to spend less than 0.5%. Some progressive firms spend 2-3%, or even more, depending on the character of their products. In America it is reckoned that the costs of putting a new product into production, after the laboratory has finished with it, may be as much as 10 times its cost to the research department, so that obviously only a proportion of the laboratory projects are marketed. In a small firm where nearly every laboratory project is directed to a particular market, the design and production departments are brought into the picture at a much earlier stage, and the costs of putting the proto-type on to the assembly line are usually much less than 10 times the research costs. In the long run the only yardstick by which the cost of research may be measured is its results.

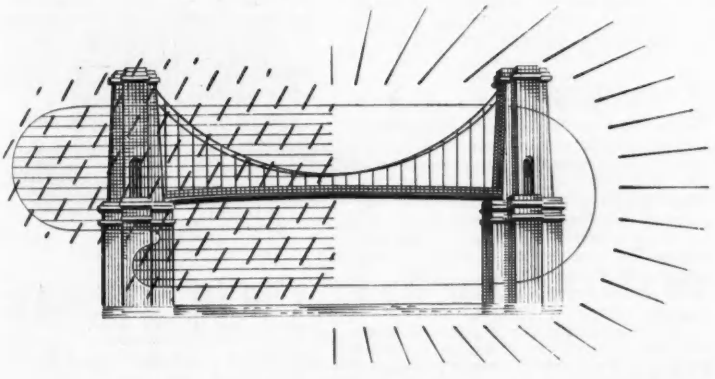
The Very Small Firm

This paper would be incomplete without some reference to the problems of the small firm which cannot afford a laboratory organisation at all. If it can afford to engage one technically qualified person, his main function should be that of an interpreter, to discover the technical conditions under which the products are used, to formulate the routine tests to be used in production, to discuss all technical questions with both customers and suppliers, to fix the technical specifications for the purchase department, to abstract anything that may be useful from scientific and trade literature, and, most important of all, to arrange for work to be done by an outside laboratory or a research institute. Membership of a research organisation cannot yield its full value unless there is someone in the firm who can interpret the results and apply them to their best advantage. The choice of a young scientist for such a position is not easy, and academic qualifications should not be the only criterion. If the right man is appointed it will probably not be long before he will justify the equipment of a small laboratory, and this may presently enable the firm to make products for a more specialised market.

It is usually advisable for a small firm to expand by specialisation rather than by attempting to make anything for which it has the workshop equipment. Every trade has a great variety of special requirements, and it is in the study of these that a small firm is most likely to find its greatest rewards.

A firm which is so small that it cannot afford to employ even one technician must seek the solution of its technical problems in a research organisation or a private laboratory. The work of the research institutes is too well known to need description here. Through them a large number of trades have in recent years made very considerable advances in manufacturing technique. It must be remembered, however, that a research institute will normally only undertake work which may prove useful to the trade as a whole. Sometimes it will be advisable for a manufacturer to enlist the support of other firms in his industry, before asking for a problem to be investigated. Even where the research institute is not free to investigate the problem in its own laboratories, it may be able to draw up a programme of trials and tests for the manufacturer to make in his own works, and if these are carried out under the observation of the institute's liaison officer a solution may very often be obtained.

Small firms should be particularly interested in encouraging the interchange of technical information between themselves. The trade associations provide opportunities for meeting and discussion, but facilities for seeing each other's works processes should be more readily granted. After all, it is not only the prosperity of each individual firm which is of concern, but the prosperity of the industry as a whole.



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COMPANY NEWS

ALLIANCE AND DUBLIN

Summary of results published on February 24 shows total revenue at £2,035,029 (£982,684), expenditure £1,910,384 (£919,570).

LANCASHIRE DYNAMO

There is a welcome tendency among industrial concerns to 'brighten' their annual reports and accounts by the inclusion of facts, figures, and photographs illustrating various facets of the company's operation and products as distinct from the purely financial statements. Another well-known firm to enter this field of 'brighter balance sheets' is Lancashire Dynamo Holdings, Ltd., whose report for 1950 takes the form of an illustrated brochure giving many interesting details of the company's activities and products in addition to the accounts and chairman's address to the shareholders.

The combined profit for the year of the company and its subsidiaries, excluding £4,593 retained in the subsidiary companies, amounts to £210,162, to which should be added £284,329 brought forward from the previous year, giving a disposable balance of £494,491. Dividends paid on account of the year ended December 31, 1950, leaves a balance of £479,809, which the directors recommend be appropriated as follows: Dividend, less tax, on the preference stock for the half year to December 31, 1950, paid February 28, 1951 (£907); final dividend, less tax, of 10%, and bonus of 7½%, less tax, on the ordinary stock (£56,242): leaving to be carried forward £422,660. The ordinary stock is standing at round about £5 1/16, giving a dividend yield at that price of approximately 4½%.

LONDONDERRY

The directors of the Londonderry Gaslight Company submit accounts for the year ended December 31, 1950, showing that the undivided balance brought forward from the previous year, after payment of dividends, amounted to £24,452, to which is added the balance, after providing for transfers to the special purposes and renewal funds, brought forward from revenue account (£2,822), making a total of £27,274. Out of this have been transferred or paid: Transfer to renewal fund, being amount formerly at credit of suspense account for cost of renewals, £3,301; a year's interest, less income tax, on the loan capital, £114; interim dividend for the year to December 31, 1950, on the consolidated ordinary stock, at 2½%, less income tax, £1,240; and war damage contribution (additional payment), £39, leaving a balance of £22,579. The directors propose to pay a final dividend for the year on the consolidated ordinary stock, at 2½% (making 5% for the year), less income tax, which will absorb £1,240, and carry forward to next account £21,339. Gas sales were higher by £2,760, and expressed in cu.ft. by 4,053,000. Against this there was a drop in revenue from residuals explained by the fact that the contract for a renewed bed of retorts lagged far behind time owing to many difficulties, including delay in the delivery of special castings, etc. The result of this was the manufacture of a much greater quantity of carburetted water gas.

COLONIAL GAS ASSOCIATION

Interim dividends have been declared by the Colonial Gas Association for the half-year ended December 31 last, at the rate of 8% per annum (Australian currency), less income tax, on the preference shares, and at the rate of 6% per annum, less income tax, on the ordinary shares, both less deduction for rate of exchange. The dividends are payable in Melbourne on April 4, but as regards those shareholders on the English register, it will not be possible, owing to uncertainty as to the rate of exchange ruling at the date of declaration of dividend, for these to be paid until the end of the month. The dividend due to shareholders on the English register will be payable in London, but where instructions to that effect have already been given to the Association, the dividends due to such shareholders will be paid to a bank or to an accredited agent in Australia.

More Gas Stock Values

The Minister of Fuel and Power has declared by Order that the values of the following securities have been determined under Part II of the Act, the conversion date being March 19.

Where payments of interest made on or before November 1, 1950, by the Gas Council under direction of the Minister are not sufficient to discharge the interest due for the three successive six-monthly interest periods ended October 31, 1950, the Gas Council will, on or about March 30, 1951, make good the deficiency by paying to holders of the securities as at September 26, 1949, March 27, 1950, and September 25, 1950, any balance due for the first, second and third periods respectively. The fourth six months' interest will be paid on the British Gas Stock on May 1, 1951.

The securities are in £100 units except where otherwise shown.

Company		Compensation Value.
Annfield Plain & District	4½% Perp. Deb. Stock ...	£100
Do.	5% Red. Deb. Stock ...	£100
Do.	5% Red. Deb. Stock (1960)	£100
Do.	4½% Red. Deb.	£100
Do.	5% Pref. Shares (£10)	£2
Do.	Ord. Shares ... (£10)	5/–
Connah's Quay	4% 1st Mort. Red. Debs.	£100 5 –
Framlingham	Ord. Shares ... (£5)	£13/10 –
Halesworth ...	8% Part. Pref. Ord. Shares (£1)	34/–
Do.	Ord. Shares ... (10/–)	6/–
Pocklington ...	5% Red. Debs.	£103
Redditch ...	3½% Red. Mort. Debs. ...	£99
Saxmundham	5% 2nd Debs.	£100 10 –
Do.	4% Red. Deb. Stock ...	£101
Do.	5% Cum. Pref. Shares ... (£1)	22/6
Do.	Ord. Shares ... (£1)	42/–

Further conversion values have been announced as followed, the conversion date in these cases being March 27.

Buckley	Ord. Shares (£10)	£17/10 –
Do.	Ord. Shares (£10 shares, £8/10/– (paid)	£14/17/6
Connah's Quay	Ord. Shares (£10)	£10/15 –
Conway	Ord. Shares (£1)	26/–
Corwen	Ord. Shares (£5)	£10
Hawarden	Ord. Shares (£5)	£7/10 –
Do.	Ord. Shares (£5 shares, £4/17/6 paid)	£7/6/3
Llanfyllin	Ord. Shares (£1)	30/–
Mold	Ord. "A" Shares (£10)	£21/12 –
Do.	Ord. "B" Shares (£10)	£15
Towyn & Aberdovey.	10% Max. Ord. Shares (£10)	£25
Do.	7% Max. Ord. Shares (£10)	£16

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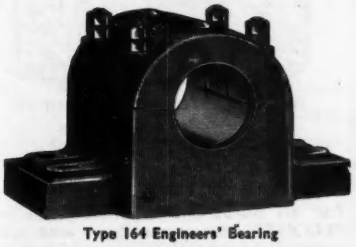

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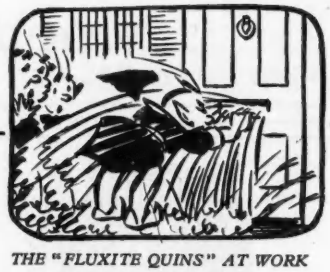
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PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/-; by post 1/2d.

NEW SUBSCRIPTION and CLASSIFIED ADVERTISEMENT RATES OPERATING FROM JAN. 1, 1951.

Subscription Rates: Home and Empire :- 52/- per annum; Foreign :- 60/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words) - minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide; block screen 120.

BUSINESS MANAGER: S. T. CULLEN

MIDLANDS OFFICE: 10, Union Street, Birmingham.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone: Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. Telegrams: Gasking, Fleet, London.

APPOINTMENTS VACANT

NORTH WESTERN GAS BOARD

LIVERPOOL GROUP.

APPOINTMENT OF INDUSTRIAL SALES ENGINEERS.

APPLICATIONS are invited for the above appointments within the salary range Provincial "A," A.P.T. Grade VII, £450-£530 per annum. The successful applicants may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applicants should preferably have had experience in the operation of Industrial Gas Appliances or heat process work and should possess the Higher Grade Certificate of the Institution of Gas Engineers (Supply) or Higher National Certificate in Mechanical Engineering or equivalent qualification.

Letters of application, giving details of experience and stating age and qualifications, should be addressed to the Chief Personnel Officer, Radiant House, Bold Street, Liverpool, 1, to be received not later than 14 days from the publication of this advertisement.

NORTH WESTERN GAS BOARD

PEAK GROUP.

APPLICATIONS are invited for the following positions in the Peak Group :—

1. SENIOR TECHNICAL ASSISTANT—BUXTON GAS WORKS.
2. SENIOR TECHNICAL ASSISTANT—CHAPEL-WHALEY GAS WORKS.

   The salary for both the above positions will be within Grade A.P.T. VII of the National Salary Scales (£450-£530 per annum), according to qualifications and experience.

   Applicants should possess the Higher Grade Certificate (Gas Engineering) of the Institution of Gas Engineers and must have experience of carbonisation in Vertical Retorts and Carburetted Water Gas Plant. The successful candidates will be responsible to the Production Engineer for the technical and chemical control of the works.
3. DISTRICT DISTRIBUTING ENGINEER—BUXTON DISTRICT.

   The salary will be within Grade A.P.T. VII of the National Salary Scales (£450-£530 per annum), according to qualifications and experience.

   Applicants should possess the Higher Grade Certificate (Gas Engineering—Supply) of the Institution of Gas Engineers and the successful candidate will be responsible to the Group Distributing Engineer for all aspects of the distributing of gas, including the control of main laying staff and the supervision of main laying work carried out by contractors within the District, together with the preparation of schemes for the extension or modification of the existing mains network.
4. DRAUGHTSMAN—GROUP HEADQUARTERS STAFF.

   The salary will be within Grade A.P.T. VII of the National Salary Scales (£450-£530 per annum), according to qualifications and experience.

   Applicants should preferably have had experience with a Gas Undertaking or Gas Plant Contractor and be capable of preparing designs and detailed drawings in connection with gas works plant, and the preparation of schemes and surveying in connection with gas distributing systems.

The successful applicants may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, suitably endorsed, giving personal details, qualifications and experience, together with the names and addresses of two referees, should reach the General Manager, North Western Gas Board (Peak Group), Gas Service Buildings, Buxton, Derbyshire, not later than 12 days after the publication of this advertisement.

NORTH WESTERN GAS BOARD

SOUTH LANCASHIRE GROUP.

ST. HELENS WORKS.

APPLICATIONS are invited for the position of a qualified ENGINEERING DRAUGHTSMAN at the St. Helens Works.

Candidates having Gas Works and/or Gas Engineering Contractor's training are preferred and should have experience of general engineering, building construction, steel structures and foundations, etc.

The salary will be in accordance with qualifications and ability and within Grade A.P.T. IX of the National Salary Scales (£520-£620 per annum).

The successful candidate may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications suitably endorsed, stating age, qualifications and experience, together with the names and addresses of two referees should be forwarded to the General Manager, North Western Gas Board (South Lancashire Group), Radiant House, St. Helens, not later than 14 days after the publication of this advertisement.

NORTH WESTERN GAS BOARD

PEAK GROUP.

ADMINISTRATIVE CLERK.

APPLICATIONS are invited from suitably qualified persons for the above appointment on Group Headquarters' Staff.

The salary will be within the range of Grade A.P.T. VI (£415-£495 per annum), according to experience and ability.

The successful candidate will be required to co-ordinate the commercial and administrative activities of the Group. Applicants should have had a good commercial training and must have good organising experience.

The successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, suitably endorsed stating age, education, qualifications and experience, together with the names of two persons to whom reference may be made, should reach the General Manager, North Western Gas Board, Peak Group, Gas Service Buildings, Buxton, not later than 12 days after the publication of this advertisement.

NORTH WESTERN GAS BOARD

PRESTON GROUP.

COKE SALES REPRESENTATIVE.

APPLICATIONS are invited from suitably experienced persons for the above position. The successful candidate will be responsible for organising the sale of coke from the four production stations within the Group.

Applicants should have a sound commercial experience and a knowledge of the use of solid fuels for industrial and domestic purposes.

The salary will be within Grade A.P.T. IX of the National Salary Scales (£520-£620 per annum), according to qualifications and the successful applicant may be required to pass a medical examination and to subscribe to such Scheme of Superannuation as the Board may adopt.

Applications, suitably endorsed, furnishing details of training and experience, together with the names and addresses of two referees should reach the General Manager of the North Western Gas Board (Preston Group), 108, Fishergate, Preston, within 14 days of the publication of this advertisement.

ASSISTANTS required for Fuel Engineering Department of large modern steelworks in the Midlands. Applicants should be 22/25 years of age with good education, preferably up to National Certificate standard. Reply stating full details of education, experience and salary required to The General Manager (Iron & Steel Works), Stewarts and Lloyds, Limited, Corby, Northants.

WEST MIDLANDS GAS BOARD

Bromsgrove District.

FIRST Class FITTERS required. N.J.I.C. conditions and rates of pay.

Applications to be addressed to :—F. J. Edmonds, Engineer and Manager, Bromsgrove District, Worcs.

WEST MIDLANDS GAS BOARD

WALSALL AND DISTRICT DIVISION.

CHIEF CLERK—WALSALL DISTRICT.

APPLICATIONS for the above post are invited from persons with secretarial and/or accountancy qualifications. The duties include supervision of wages, coke, stores and meter reading sections, preparation of statistics, maintenance of staff records and control of clerical staff.

The commencing salary will be within the range £595-£720 per annum, in accordance with Grade XI of the National Joint Council for Gas Staffs Scales.

The appointment will be subject to such superannuation regulations as the Board may, in due course, adopt, and the successful candidate may be required to pass a medical examination.

Applications should be addressed to Mr. E. Hardiker, Divisional Manager, West Midlands Gas Board, Walsall and District Division, Walsall Factory Estate, Tame Bridge, West Bromwich Road, Walsall, to reach him not later than fourteen days after the appearance of this advertisement. Applicants are requested to quote Ref. T.P. 3 when replying to this advertisement.

F. H. CURETON,
Secretary.

SOUTH EASTERN GAS BOARD

EAST SURREY DIVISION.

MECHANICAL SUPERINTENDENT, WADDON WORKS.

APPLICATIONS are invited for the position of MECHANICAL SUPERINTENDENT at Waddon Works, Purley Way, Croydon.

Applicants should have a good theoretical and practical knowledge of the usual plant to be found at a large Gas Works and be fully competent to maintain a steam raising plant, steam and internal combustion engines, stoking machinery, turbines, boosters and pumps, etc. They should also be familiar with mechanical handling plant and hydraulic machinery and have had extensive practical and supervisory experience in mechanical workshops practice.

Corporate membership of the Institution of Mechanical Engineers would be an advantage, but this is not insisted upon if Gas Works experience has been extensive.

The minimum age limit is 35 and the salary will be not less than Grade X of the salary scales of the National Joint Council for Gas Staffs (Metropolitan Area) in respect of Male Administrative, Professional and Technical Staffs (£600-£700 per annum).

A house is available at an economic rental.

Applications in writing (quoting reference V 10/131) giving particulars of age, training, experience, present occupation, etc., should reach the Personnel Manager, South Eastern Gas Board, Katharine Street, Croydon, not later than Friday, April 20, 1951.

(Classified advertisements continued on Supplement 4).

APPOINTMENTS VACANT (*ctd.*)

SOUTH WESTERN GAS BOARD

SOUTHERN DIVISION.

PLYMOUTH AND NORTH CORNWALL SUB-DIVISION.

APPLICATIONS are invited for the appointment of SUB-DIVISIONAL SENIOR ACCOUNTANCY/ADMINISTRATIVE ASSISTANT.

Applicants should be keen, capable organisers, and have had extensive practical experience of the Accounts of Gas Undertakings. Other things being equal, preference will be given to candidates possessing a recognised Accountancy qualification.

The salary will be within the range £570 to £670.

Applications, stating age, qualifications and experience, together with names and addresses of two persons to whom reference may be made, should be received by the undersigned not later than April 14, 1951.

J. W. DEAN,
Manager.

Fox's Field,
Cattedown,
Plymouth.
March 28, 1951.

NORTHERN GAS BOARD

MIDDLESBROUGH DIVISION.

ENGINEERING DRAUGHTSMEN.

APPLICATIONS are invited for the appointment of ENGINEERING DRAUGHTSMEN in the Middlesbrough Unit. The appointments will be subject to the Conditions of Service set out in the Agreement of the National Joint Council for Gas Staffs.

Salary will be within the range of Grade A.P.T. VIII, of the National Scale for Gas Staffs (£490-£570). A flat is available if required at reasonable rent.

Applications, with the names of two referees, should be sent to S. Jones, Engineer and Manager (Western Section), Gas Works, Commercial Street, Middlesbrough, as soon as possible, but not later than 9 a.m., on April 16, 1951.

JOHN W. PALLISTER,
Divisional General Manager.

DARLINGTON DIVISION.
DRAUGHTSMAN.

APPLICATIONS are invited for the position of DRAUGHTSMAN at the Darlington Unit.

Applicants should be experienced in the design, construction and maintenance of Gas Works' Plant and preferably have been trained with a Gas Undertaking or Gas Plant Contractor.

Salary, Grade A.P.T. VIII (£490-£570); final placing according to qualification and experience.

Conditions of Service will be in accordance with the Agreement of the National Joint Council for Gas Staffs.

The appointment will be subject to such Superannuation Scheme as the Board may adopt and the successful applicant will be required to pass a medical examination.

Applications, stating age, experience and qualifications, together with the names of two referees, should be addressed to Charles Hindle, Engineer and Manager, Darlington Unit, Gas Offices, John Street, Darlington, not later than April 16, 1951.

F. WILSON,
Divisional General Manager.

WEYMOUTH—GENERAL WORKS FOREMAN required with knowledge of Horizontal Retorts. Works is fully mechanised and applicant will carry out his duties under the supervision of the Works Superintendent. Living accommodation can be provided on Works if desired. Salary in accordance with Scale A.P.T. V. Apply, giving full details of age, experience, to General Manager, Weymouth and Dorchester Group, Southern Gas Board, Weymouth.

SOUTHERN GAS BOARD

NORTHERN DIVISION.

CIVIL AND MECHANICAL ENGINEER.

APPLICATIONS are invited from qualified engineers for the post of CIVIL AND MECHANICAL ENGINEER to undertake the design and planning of all engineering projects, including a new Gas Works.

The commencing salary will be between £850 and £1,000 per annum, according to qualifications and experience. Applicants must possess a recognised engineering qualification and have had considerable experience in all aspects of Gas Works construction.

The successful applicant will be responsible to the General Manager of the Oxford Group of Undertakings and will work under his direction. The appointment will be subject to such superannuation regulations as may, in due course, be made, but any existing superannuation rights in the gas industry will be preserved. A medical examination may be required.

Applications should state details of age, training, experience, qualifications, present position and salary and the names of two referees to whom enquiries can be addressed. The closing date for the receipt of applications will be April 21, 1951.

ALEXANDER TRAN,
Divisional General Manager.

Therm House,
St. Aldate's,
Oxford.

SCOTTISH GAS BOARD

PAISLEY DISTRICT.

VACANCY FOR TECHNICAL (ENGINEERING) ASSISTANT.

APPLICATIONS are invited for the post of TECHNICAL (ENGINEERING) ASSISTANT in the Paisley District Undertaking.

Applicants should preferably have had some experience in the maintenance and layout of gas works plant and distribution systems, be conversant with the layout of buildings and the preparation of schedules and the supervision of constructional work.

A knowledge of civil engineering and structural steel work will be an advantage.

The salary will be in accordance with Grade VI, Prov. A., of the National Salary Scales—£415, rising by increments of £20 to a maximum of £495 per annum.

Applications, giving full particulars of age, qualifications, experience and present position, accompanied by not more than two references and endorsed "Technical (Engineering) Assistant" should be lodged with the undersigned not later than Saturday, April 21, 1951.

JAMES M. DOW,
District Manager.

27, McKenzie Street,
Paisley.
March 21, 1951.

EASTERN GAS BOARD

NORWICH DIVISION.

WORKS SUPERINTENDENT.

APPLICATIONS are invited for the position of WORKS SUPERINTENDENT at the Lowestoft Undertaking. The Works produces 300 million cubic feet per annum. Applicants should have experience in modern methods of gas manufacture and be capable of taking charge of the Undertaking in the absence of the District Manager and possess the Higher Grade Certificate in Gas Engineering (Manufacture). The sucessful candidate will be required to pass a medical examination. The commencing salary will be within the range of A.P.T. VIII and a flat adjacent to the Works will be made available at a reasonable rent.

Applications giving details of age, qualifications and experience, together with the names of two referees, should be forwarded to the undersigned not later than 14 days from the date of this notice.

JOHN H. GREENACRE,
Manager, Great Yarmouth Group.

40, King Street,
Great Yarmouth,
Norfolk.
April, 1951.

EAST MIDLANDS GAS BOARD

LEICESTER AND NORTHANTS DIVISION.
NORTHAMPTON UNDERTAKING.
SALES AND SERVICE SUPERINTENDENT.

APPLICATIONS are invited from suitably qualified persons for the above position.

Applicants should have good experience in administration and be competent, under the general direction of the Sub-Divisional Sales and Service Manager, to organise and control sales of appliances and general service to consumers in the Northampton Undertaking. Experience of the use of gas for industrial purposes will be an advantage.

The commencing salary will be within Grade A.P.T. IX of the National Salary Scales for Gas Staffs (£520-£620 per annum) with placing according to experience.

The successful candidate will be required to pass a medical examination and the appointment will be subject to the provisions of any Superannuation Scheme which may be adopted by the Board.

Applications, stating age, and giving details of education, training, qualifications and experience, together with the names of two referees, should be forwarded to the undersigned not later than April 14, 1951.

C. C. WOOD,
Divisional General Manager.

Gas Offices,
Millstone Lane,
Leicester.
March 31, 1951.

BUSINESS FOR SALE

PARTNER leaving London for family reasons wishes to dispose of his half share in small flourishing London Business. Splendid Investment for energetic Gas Technician. Replies to No. 9956, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

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R.S. VERT. RECEIVER 10 ft. × 4 ft. 6 in., tested 140 lbs. p.s.i.

26 kW. Tangye DIESEL GENERATING SET, 220 v. D.C.

"Tangye" Special STEAM PUMPS, 20,000 and 30,000 g.p.h. 300 ft. hd.

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Harry H. Gardam & Co., Ltd.

WASTE HEAT BOILER.

ONE natural draught WASTE HEAT BOILER complete with mountings and fittings ex Woodall-Duckham's installation available, due to replacement by larger boiler.

Suitable for dealing with waste gases from six 44 in. retorts, then generating 1,000 lbs. approximately of steam per hour at 100 lbs. per square inch.

Apply for further details to East Midlands Gas Board, Stamford Undertaking.

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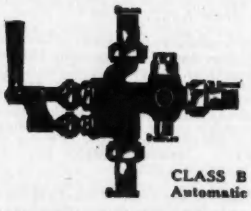

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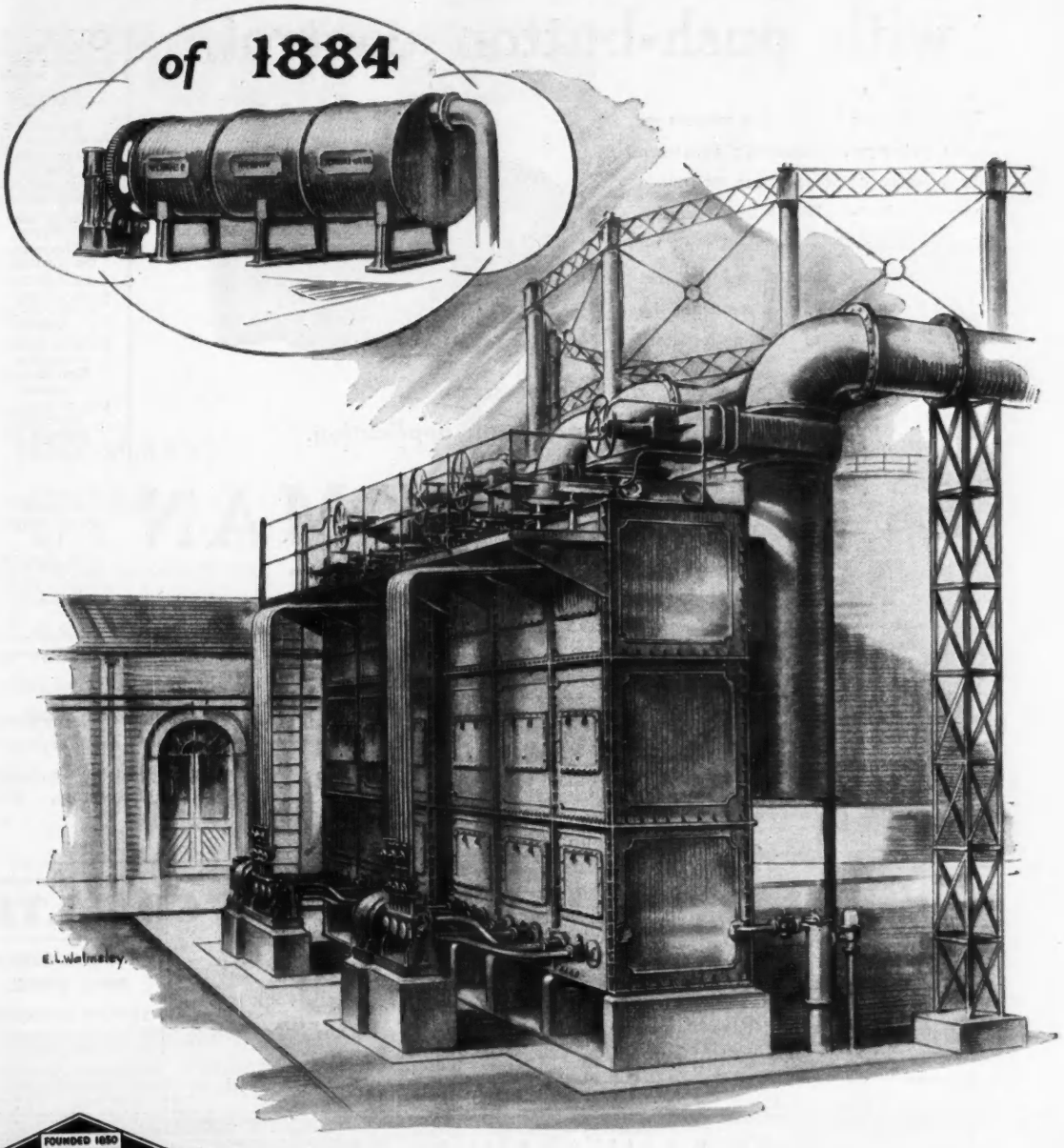

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Safety Shut-off Valve

with push-button control.

This valve is for use on low pressure gas supply pipes. It shuts off the gas when the pressure drops to a pre-determined point (usually 1-in. W.G.), and it remains shut and cannot be re-opened until **all** burner cocks are shut off and the inlet pressure restored. It is re-opened by manual operation of the push-button.

Made in several sizes.

Full particulars and prices on application.

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Air and Gas Compressors
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KEITH BLACKMAN

SAFETY SHUT-OFF VALVE.

KEITH BLACKMAN LTD. MILL MEAD ROAD, LONDON, N.17

ALEXANDER WRIGHT & CO LTD

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UNDERPRESSURE ENGINEERING CO., LTD.

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INSULATING BRICKS, RECUPERATOR TUBES, SPECIAL SEMI-SILICA QUALITY FOR SEGMENTAL RETORTS WITH NO EXPANSION OR CONTRACTION AT 1400° C

Manufacturers of

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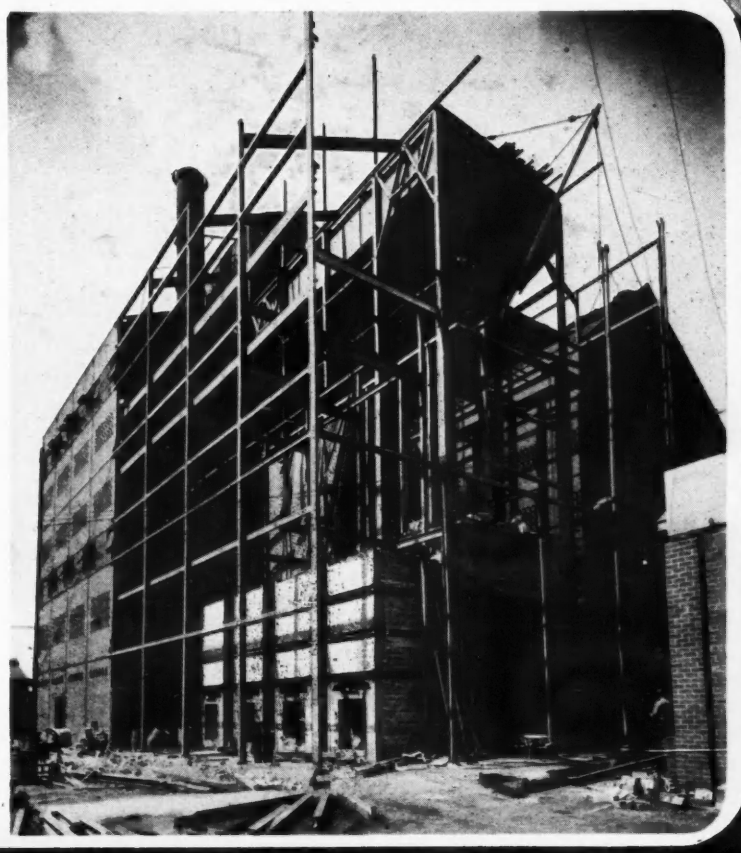
OF EVERY DESCRIPTION

Printed by STRAKER BROTHERS LTD., E.C.2, for WALTER KING, LIMITED, 11, BOLT COURT, FLEET STREET, LONDON, E.C.4. Wednesday, April 4, 1951.

Work in progress



FOOTSCRAY, AUSTRALIA

Since the original carbonizing plant at Footscray consisting of 24 retorts was installed in 1926, several additions have been made. The latest extension, shown here, comprises 16 retorts, bringing the total number of retorts to 80.

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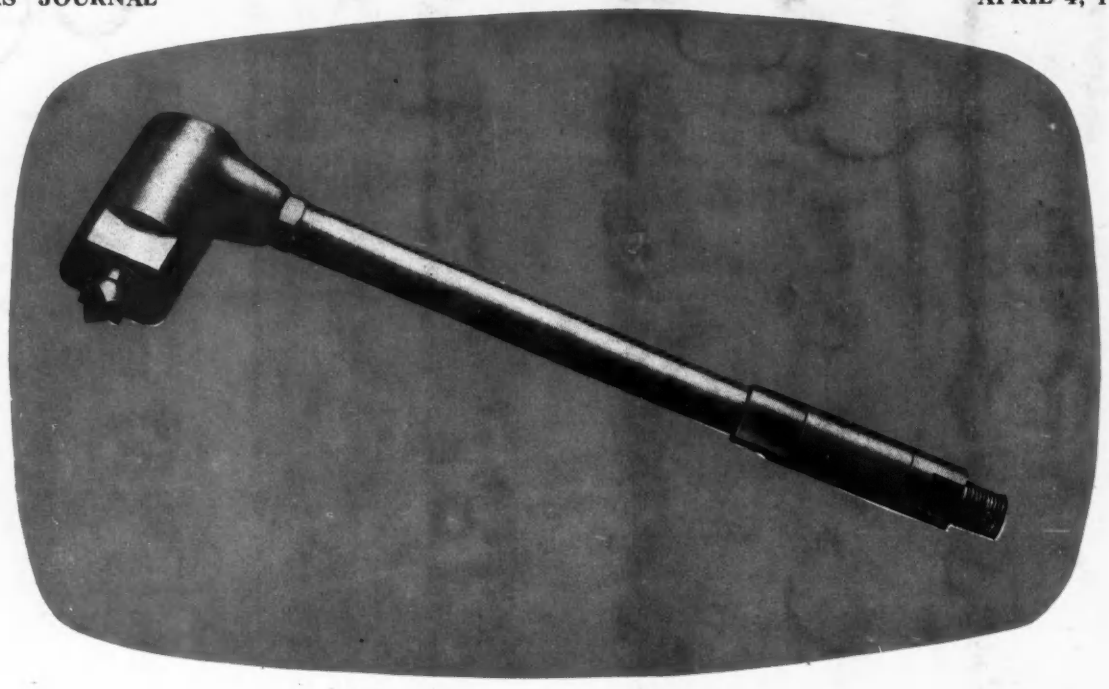

Metal preservation needs Compressed Air

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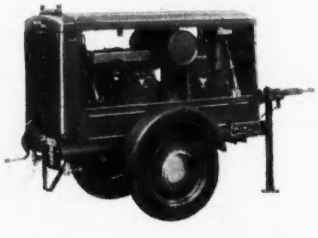
Now in full production is the new "Broomwade," S.V. 78, Portable Sleeve Valve Compressor delivering 60 cu. ft. free air per minute actually delivered 100 lbs. per sq. inch pressure—sufficient to operate 10 Scaling Hammers!



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